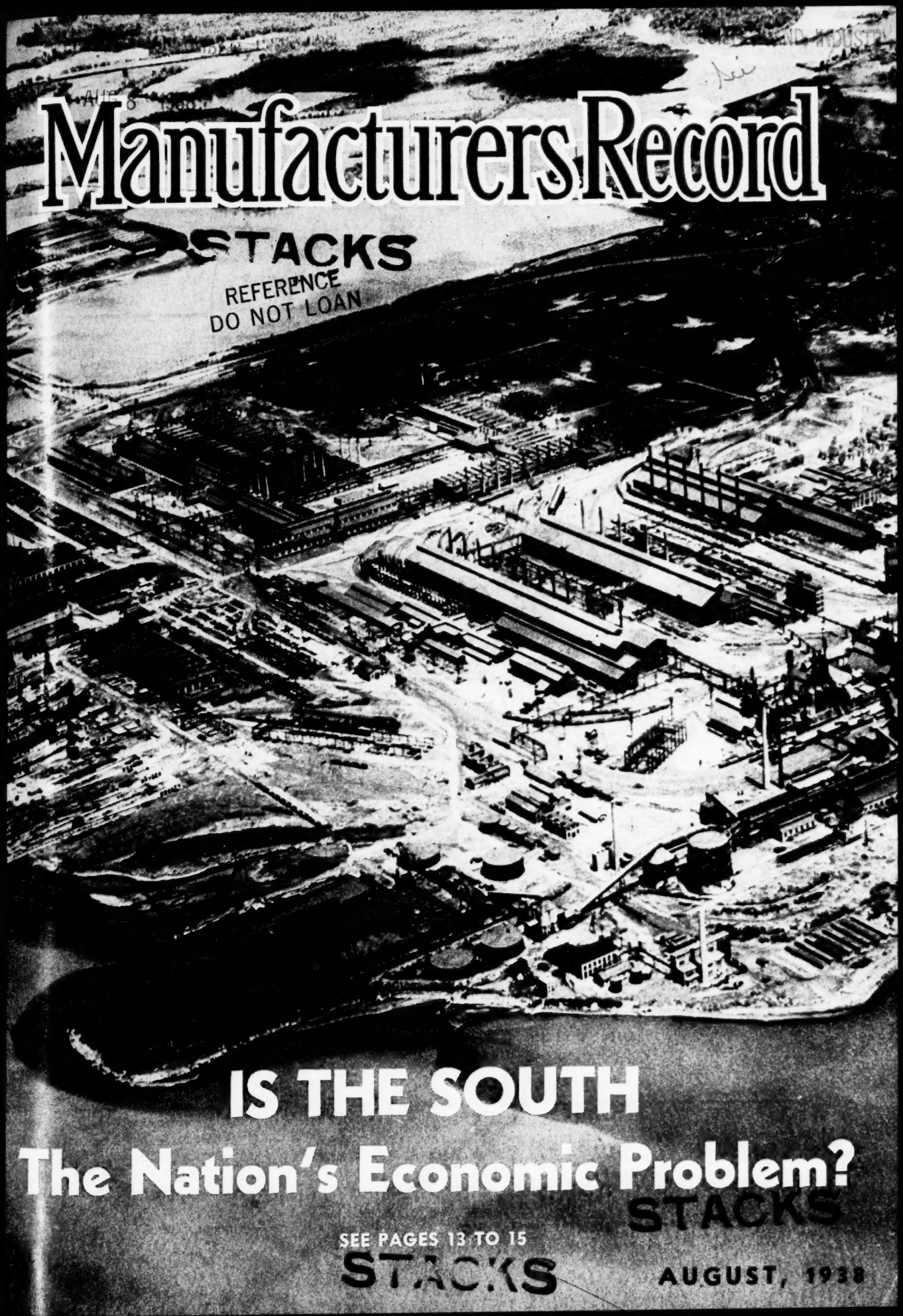
Manufacturers Record
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IS THE SOUTH
The Nation's Economic Problem?
STACKS
SEE PAGES 13 TO 15
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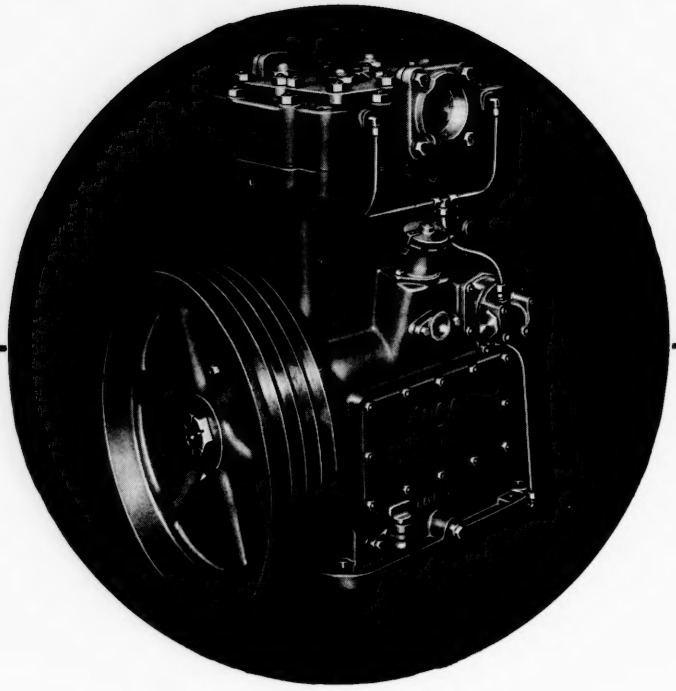
AUGUST, 1938



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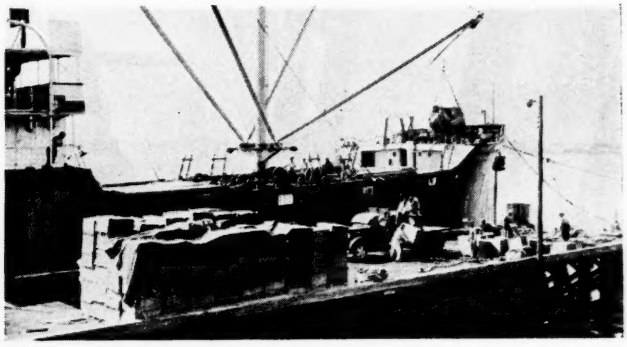

Loading woodpulp at Fernandina, Fla.

COVER

Air view of Bethlehem Steel Company's plant at Sparrows Point, Md.

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MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

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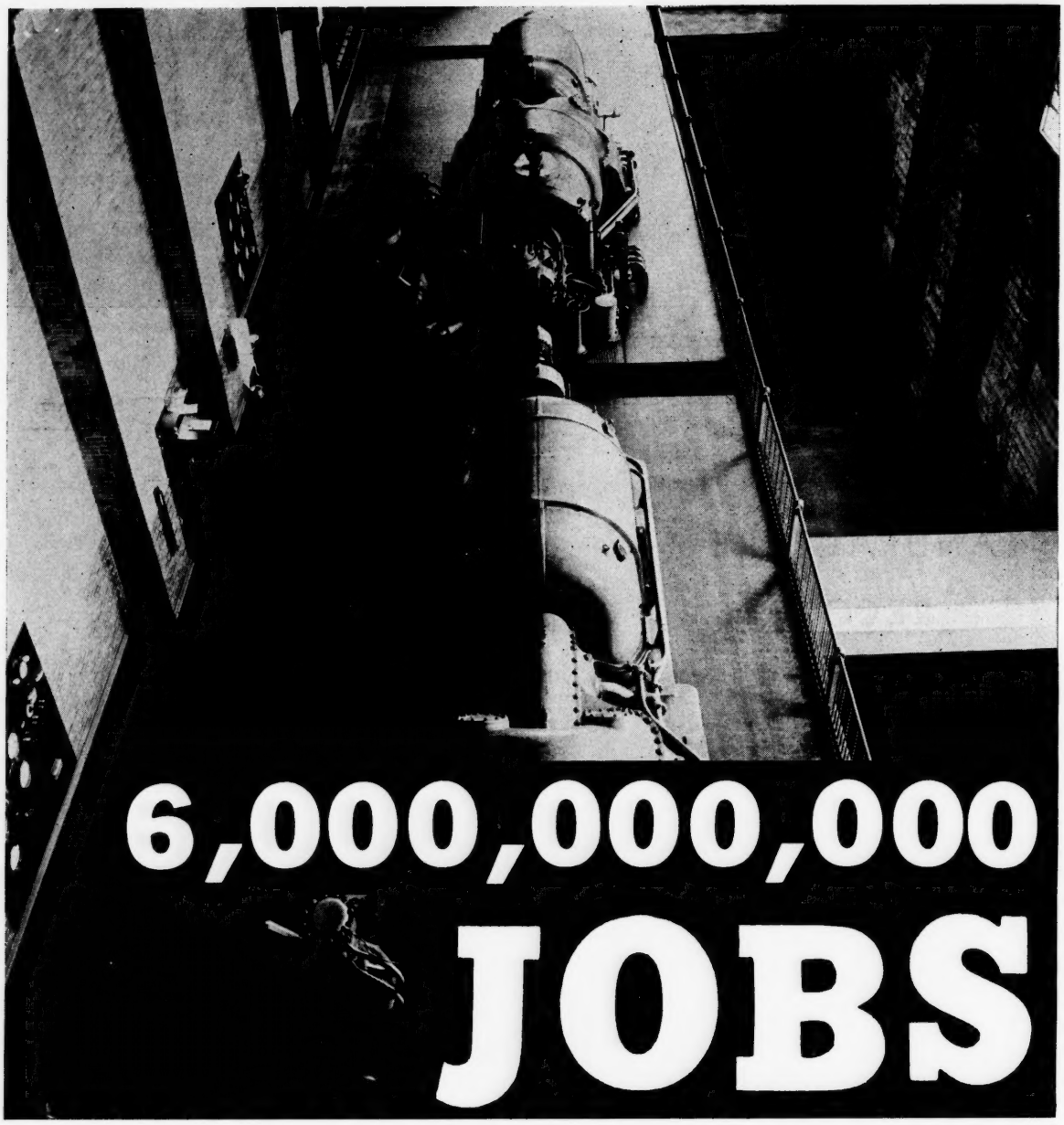

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IS THE SOUTH THE NATION'S ECONOMIC PROBLEM?

THE STATEMENT from the White House that the South is "the nation's No. 1 economic problem" has stirred widespread comment. It is a declaration which we believe the facts will not bear out. There have been ascribed various motives why such a statement was made, but they may be laid aside while incontrovertible data of progress are considered—progress in comparison with the rest of the country.

The facts which appear here are taken mainly from the Blue Book of Southern Progress, published a few days prior to the assembly of a committee at Washington when an agenda covering its work of exploring the South's economic status was presented. These facts are from U. S. census reports and are therefore authoritative.

They do not attempt to meet generalizations which are the indulgence of melancholy writers who discuss "wasted lands," "wasted opportunities," etc.—generalizations which do not inform about how many acres and opportunities are wasted.

Some Southern economists asked by the Associated Press to offer their comments keep the ball of generalizations rolling. Programs are outlined of such haziness as to render definite action of any kind impossible. One of those interviewed, who wants Federal control of education, states: "human erosion is equally as grave a problem in all the Southern states as soil erosion." We are not informed about how much human erosion there is, what is meant by the expression, nor if the quantity of eroded people is greater than it is in other sections. Perhaps we shall know later how much soil erosion there is in the South in comparison with other sections of the country.

Whatever may have been the purpose of the stigmatic statement that the South is "the nation's No. 1 economic problem," whether it was prompted by interests of other sections jealous of the South's progress, which has been hinted as the force back of the adoption of the Wage & Hour bill, it is a fact that there is jealousy on the part of certain businesses of the North and East, which is being proved while this is written by the testimony before the Interstate Commerce Commission at its hearing at Buffalo to decide whether the South is or is not entitled to an equalization of freight rates.

NORTHERN GOVERNORS, one after the other, are saying that the industries of the North will be thrown into confusion if the South is allowed the same rate per ton per mile for shipping its goods that Northern producers are paying to carry their products into Southern territory.

The press quotes Governor Cross of Connecticut as attributing the decline of New England industry and corresponding industrial progress in the South to "migration of industries to the South." He referred to the South's natural advantage of climate, which brings "materially reduced living costs in fuel, clothing, recreation and food." He then adds: "It does not seem to me equitable that the commission should, in the light of all these other advantages, free the complainants of what they claim is the lone disadvantage (higher freight rates). The South has God-given aids, which even the Interstate Commerce Commission cannot match."

This puts a different aspect upon the "economic problem" which the South presents, and is evidently in the eyes of fearful industry in other sections a competitive problem.

Is that what the President meant?

If the record of the last 40 years is examined there will be seen the steady, constant progress the South has been making. In 1900 the value of its manufactured products was $1,500,000,000, while in 1935 the value of its manufactured products was more than $8,500,000,000. The figures for last year, 1937, have not been issued, but they will probably reach $10,500,000,000 which is more than one-fourth of the value of what the United States manufactured (the South included) in 1935.

The South was left with a problem in 1865 when it was stripped of its wealth and it has been working on it ever since and with remarkably successful results.

Twenty years after the Civil War, it has been reliably estimated, 5,000,000 of the best young men of the South had left to seek their fortunes elsewhere. Notwithstanding that migration and political misrule from which the South suffered for years following the War Between the States, the South has gone along solving its own problems which it will continue to do if reformers from other sections, and people who are jealous of its success, let it alone. Unfortunately there are those in the South who have been prone to call for help whenever the price of cotton is low, or whenever a crisis of some kind, as part of the economic picture, affects the South. The only help the South needs is fair treatment.

AS AN agricultural section for generations it will be recognized, although the South today is fast becoming a manufacturing region, that per capita wealth cannot be expected in a few years to equal that of industrial sections. Agricultural states or countries never have gained the wealth that manufacturing brings. Home markets created through industrial development are necessary too for successful agriculture. But the South has now set about in earnest developing its natural resources for manufacturing which are unequalled in any similar area on earth.

If it was from political motive that the charge was leveled against the South that it is the No. 1 economic problem of the nation, then it was political deception, which is unworthy, and intelligent people will judge it accordingly.

The South's upward climb from poverty has amazed the world. It had the resources nature gave it and the grit to persevere. To call it now "the nation's No. 1 economic problem" in the face of its progress, even during these years of depression when the rest of the country was declining, is arrant nonsense. Each section and each community throughout the country has its problems. Those who visit the congested industrial areas of the North and East find poverty and slums and ignorance and vice far beyond anything the South has.

THE VALUE OF the South's manufactured products is 2½ times that of its agricultural products.

The value of the South's manufactured goods in 1935 was $8,632,238,000, or nearly 20 per cent of the total value of manufactured products of the entire United States, the South included.

The value of the South's manufactured products declined less than 17 per cent between 1927 and 1935, compared with a decline of over 29 per cent for the rest of the country.

The South, regarded as an agricultural area, has nearly 25 per cent of the manufacturing establishments of the United States.

For material, containers, fuel and purchased power, the South in 1935 paid $5,411,460,000, or more than 26 per cent of the amount spent for similar purposes by manufacturers of the country, the South included.

In 1936 the South bought $4,000,000,000 worth of new life insurance as compared with $11,000,000,000 for the rest of the United States.

The South spent in 1934, the latest year for which figures are available, $351,717,000 on public schools, or 21 per cent of the total spent by the nation, the South included. But even more significant, public school enrollment in the South in 1934 was 10,032,965, compared with 18,401,035 for the rest of the United States.

The value of the South's mineral production in 1936 was $1,739,431,000, compared with $2,922,569,000 for the rest of the country, or 37 per cent of the value of the mineral production of the whole country, the South included.

The value of lumber products produced in the Southern States for 1935, which is the latest figure available, was $229,474,000, or nearly 42 per cent of the value of lumber production of the entire United States, the South included.

The South produced in 1936, 70 per cent of the natural gas produced in the United States.

IN 1935 THE estimated wealth of the South was more than 24 per cent of the total wealth of the country, the South included.

In 1937 the South produced 67 per cent of the crude petroleum produced in the United States.

The South produced in 1937, 23 per cent of the electricity produced in the United States by public and private plants.

The capacity of the public utility plants of the South is 24 per cent of the capacity of public utility plants of the United States, the South included.

The internal revenue tax paid in 1937 by the South was almost 24 per cent of the total paid by the entire United States, the South included.

Eighty-seven per cent of the cotton used in all American mills is consumed in the South by its textile establishments.

The installed spindles in the South are 18,913,455, compared with 8,069,000 for the rest of the country.

The South has more than 70 per cent of the rayon manufacturing capacity of the country.

The South produces 47 per cent of the country's output of coal, excluding Pennsylvania anthracite.

The South produces virtually all of the sulphur produced in the United States.

The South produces the entire output of the country's bauxite.

The South produces practically all the carbon black from natural gas.

The South produces practically all the phosphate rock.

WHILE COTTON IS the leading crop, cash farm income from cotton last year was $645,325,000, while the total cash farm income of the South during the same period was $2,851,052,000, so that cotton represents less than 25 per cent of the income the South derives from its agriculture.

The South manufactured 25 per cent of the blasting powder and high explosives made in America.

The South manufactures in its 478 fertilizer factories 70 per cent of the dollar value of fertilizer produced in America.

Last year the total commerce passing in and out of Southern ports reached a dollar value of $1,475,624,582, or an increase over the year preceding of 29 per cent, while the value of exports through Southern ports totals nearly 30 per cent of the value of exports of the United States.

In 1936 a total of almost one billion dollars was invested in new construction work for buildings, roads, streets, industrial and engineering projects. Of this total $322,000,000 was for industrial plants.

In the last two years $100,000,000 has been invested in new paper and pulp mills in the South. In this branch of industry a total of more than $200,000,000 is now invested in 12 of the Southern States.

In 1937 the South showed an increase of banking resources of more than 5 per cent, while the entire country's bank resources increased only 2½ per cent. Bank clearings increased 14 per cent in the South, while the United States, the South included, increased only 8 per cent.

The South has over 26 per cent of the nation's automobiles, and consumes 26 per cent of the gasoline used in the United States.

The South has been pictured as a place of gloom, its people suffering from dire maladies and without shoes, but the facts given above, which are a record of continued progress in good times and bad, show there is little ground for the claim that the South is the problem of the nation.

A Southern paper, apparently thinking otherwise, states that cotton and tobacco accounting for "two-thirds of the cash income of the farming South is our oldest, most universally recognized fundamental handicap." Adjectives do not make it so. Census figures prove it otherwise.

The cash income of the farming South for the year 1937 was $2,851,000,000.

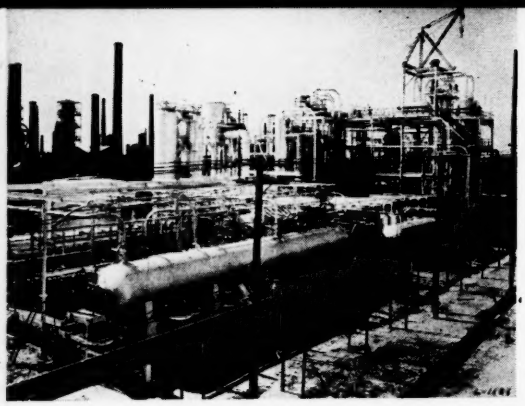
Cash income of the farming South from cotton was $645,325,000, and from tobacco $296,475,000, or a total of $941,800,000, which is a little over 33 per cent instead of 66-2/3 per cent as claimed. This is in keeping with a lot of other ill-considered statements which are not borne out by facts.

The South is diversifying its crops as we have said before. It is learning the value of diversification.

IF WE TAKE the cotton growing states alone, the cash income of the farmer from cotton and tobacco in those cotton-growing states was $934,610,000, while the total cash income from *all crops in the same cotton-growing states, exclusive of government payments*, is $2,419,728,000. Tobacco and cotton even in these states account for only 38 per cent of the cash income of the farmer instead of 66-2/3 per cent.

Thoughtless generalizations fall flat in the face of facts.

The absurdities about outside capital contributing to the supposed problem the South presents are on a par with the proposed uprooting of 3,000,000 to 6,000,000 Southerners and sending them elsewhere. Such suggestions aside from their impracticability are made without regard to what the record of progress shows, nor the recognized fact known to industry of other sections seeking Southern locations that the Southern states today offer the most promising oulook for the creaion of new wealth to be found in America.



Courtesy—The Lummus Co.

A solvent treating plant (Duo-Sol) with a capacity of 2,000 barrels per day

Developments in Petroleum Refining

BY

Dr. J. B. Rather

Socony-Vacuum Oil Company, Inc.

PETROLEUM refining ranks among the four leading industries of the United States. Capital investment in refinery equipment in 1936, amounted to over three and one-half billion dollars and over 1,068,000,000 barrels of crude oil were processed by American refineries during that year. Petroleum now supplies over one-third of all the mechanical energy produced in the United States, and lubricates practically every piece of machinery.[1] In spite of its size and large capital investment, many radical changes in refining methods and products have been made during the past few years. Recent developments in automobiles, airplanes, electrical transmission and Diesel engines are but a few of the cases where progress has required improved and, in some instances, radically different types of petroleum products. Many of these products could not have been produced with the refining equipment available five or ten years ago.

Crude oil as it comes from the well is unfit for any use except fuel. It must first be separated into fractions by distillation. When it is considered that over a billion barrels of crude annually undergo distillation in some form, the economic importance of efficient distillation becomes obvious. Distillation economy centers principally in efficient heat transfer between the fuel and the charging stock and between the vaporized and unvaporized portions of the oil being distilled. Modern pipe stills and fractionating columns are marvels of heat efficiency as compared with the shell stills in general use less than ten years ago. Fuel efficiencies as high as 78% are now obtained as compared with 20% with the older stills. The modern bubble cap fractionating tower will also produce closely cut fractions directly from the primary distillation of the crude, whereas with shell stills it was often necessary to redistill the oil four and five times to approach the same result. Finally, in order to preserve the lubricating oil value in the heaviest fractions of the crude, it is desirable to conduct the distillation of those fractions under reduced pressure. Modern stills can be operated at pressures as low as 0.5 inches of mercury at the top of the column, thus increasing the yield of valuable lubricating oil. Regular carbon steels are adequate for the construction of these stills and maintenance costs generally are low but corrective measures to prevent corrosion, such as desalting or additions of soda, lime or ammonia, are necessary for some crudes.

Gasoline is now the most economically important product from crude oil, amounting to over one billion dollars in 1935. However, except for a few special crudes, the gasoline which is cut directly from crude is too low in anti-knock value to be used straight. Modern automotive and airplane engines require octane numbers of from 70 to 100, whereas straight run gasoline may be 50 octane or lower. Most straight run gasoline is, therefore, blended with other gasolines of higher anti-knock value made by reforming, cracking, polymerization or from natural gas. At present, straight run gasoline constitutes less than 46% of the total gasoline consumed. As aviation requirements increase, the percentage of straight run gasoline will become still less owing to the high anti-knock demanded for aviation service.

Cracked gasoline can be made from almost any part of crude oil which is available and which cannot be more economically disposed of in other ways. Gas and tar or coke are formed as by-products. Cracking is a comparatively old refinery operation but has been greatly improved during the past ten years. Cracked gasolines now constitute nearly half of the total gasoline consumed and, hence, cracking has, in one sense, about doubled our crude resources. Cracking may be considered as falling into two classes, thermal and catalytic. Thermal cracking is older and accounts for most of the gasoline now produced. Yields which were impractical five years ago are now commonplace owing to the development of special high temperature steels, hot oil pumps and better heat exchangers. Also higher anti-knock gasoline and more efficient operation have resulted directly from these improvements. In striving for higher anti-knock values by more severe cracking, the amount of gas formed has been somewhat increased. Three or four year ago, this increased gas would have represented a serious loss to the refinery but polymerization can now be used to convert much of the gas into a very high anti-knock gasoline. Yields of 3.5 gallon per 1000 cu. ft. of gas are obtainable and may represent a saving of 3 to 4% on crude oil through the refinery.[2] As with cracking, there are two methods for polymerizing refinery gases, namely, thermal and catalytic. Both processes yield products of high anti-knock blending value and represent one of the most recent developments in petroleum refining. While polymerization has only recently been adopted on a large scale, its economic value seems assured.

Catalytic cracking is a recent development and is capable of giving high yields of gasoline with a relatively small amount of gas. The gasoline has exceptionally high anti-knock value and freedom from gum formation in storage. These characteristics make the gasoline particularly suitable for use as an aviation fuel.

Maintenance of cracking equipment is somewhat higher than distillation and, owing to the higher temperature employed, thermal efficiency is somewhat lower. Maintenance costs have been greatly reduced and general efficiency improved by the introduction of special alloy steels for cracking and polymerization tubes, hot oil pumps, heat exchangers and other equipment subjected to high

stresses and temperatures. Tubes now operate at temperatures of 1,200 to 1,500° F. with a life of many months and for years under milder conditions. Pumps capable of handling oil at 750° F. and 1,000 to 1,500 pounds per square inch pressure are in constant operation and require comparatively little attention.

While many new products have been produced from petroleum fractions intermediate between gasoline and the heavier lubricating oils, the economic importance of these, at least with respect to the volume produced, does not permit discussing them here in detail. However, practically all industry is dependent on petroleum lubricants and many outstanding improvements have been made in both the oils produced and manufacturing methods. The greatest volume use of lubricants is for internal combustion engines. These engines have developed rapidly during the past five years with definite trends toward higher speed, higher compression and higher power output per pound of engine weight, all of which has increased the burden on the lubricants. Hence, oils in common use five years ago would be quite unsatisfactory today.

The outstanding development for improving lubricating oils for internal combustion engines is solvent refining. Formerly, such oils were refined with sulfuric acid followed by percolation through Fuller's earth. Some crudes were difficult to acid treat and only bleaching clay was used in the refining process. Regardless of whether acid and clay or just clay was used, it was seldom possible to refine the more viscuous oils as far as was desirable because of secondary reactions set up by the acid. Solvent refining, however, does not have the same limitations because no chemical reaction occurs between the solvent and the oil, at least in the ordinary sense, and, therefore, the refinement can be carried to any desired extent. Solvents having widely different characteristics are now commercially available and may be used either singly or in combination to suit the particular stock to be treated and the type of oil desired. Furfural, phenol, chlorex, and sulfur dioxide are examples of solvents capable of removing certain parts of the oil of an aromatic nature which are unstable in service. In addition, these solvents will also remove some of the asphaltic and resinous parts of residuum stocks which tend to promote carbon deposits in engines. Asphaltic and resinous bodies, however, are more effectively removed by other solvents, such as propane. Combinations of propane with other solvents and particularly cresols, are very effective for refining many residuum stocks that are difficult to handle by other methods. The Duo-Sol process is based upon the combined action of propane and cresols in a counter-flow system. Distillate oils, of course, do not contain asphaltic or resinous bodies and, therefore, solvents of the propane type are unnecessary for refining distillates.

The cost of solvent treating plants based on barrels per day throughout varies over a wide range, depending upon the size, type of solvent, charging stock, etc. Large size units are relatively cheaper than small units. Single solvents such as furfural and chlorex which operate at atmospheric pressure, are cheaper to use for certain types of operations than processes employing solvents such as propane which require equipment constructed for working pressures in the region of 200 pounds per square inch. The same unit may have four times more treating capacity for some charging stocks than it has for others. It is, therefore, seldom possible to make general comparisons of solvent treating processes. Modern solvent treating plants are both efficient and reliable. Maintenance is low as most of the solvents are relatively noncorrosive and losses are generally low for the heavier solvents. As might be expected, the losses of volatile solvents like propane are somewhat higher.

While a difference between the oils is evident from tests, the improvement in performance is even more marked. Solvent refining not only represents a marked advance in its own right but in addition it generally provides more suitable base oils for still further improvement by the use of addition agents. Many engineering developments have appeared and are in progress which require lubricants having properties not obtainable directly from petroleum. In these cases, it is not entirely a question of refining because the particular quality required simply does not exist in natural petroleum and must be introduced by the addition of some other material. Usually, however, it is highly important that the oil is suitably refined to match the addition agent used. Otherwise the effect of the addition agent may be lost and in extreme cases the combination might be even less serviceable than if the addition agent were omitted.

One of the major difficulties in petroleum refining has been the removal of high melting point waxes. They are almost invariably associated with those crudes from which the most valuable and stable high viscosity lubricants are obtained. These waxes are termed "micro crystalline" and for many years resisted all efforts to remove them from the oil without entailing a heavy loss of oil in the process. Furthermore, with the dewaxing methods formerly available, great care had to be exercised in refining the oil in order that the wax removal would not be rendered still more difficult by being changed into some form which the dewaxing process could not handle. Many otherwise desirable refining steps were infeasible or restricted because of the effect on dewaxing.

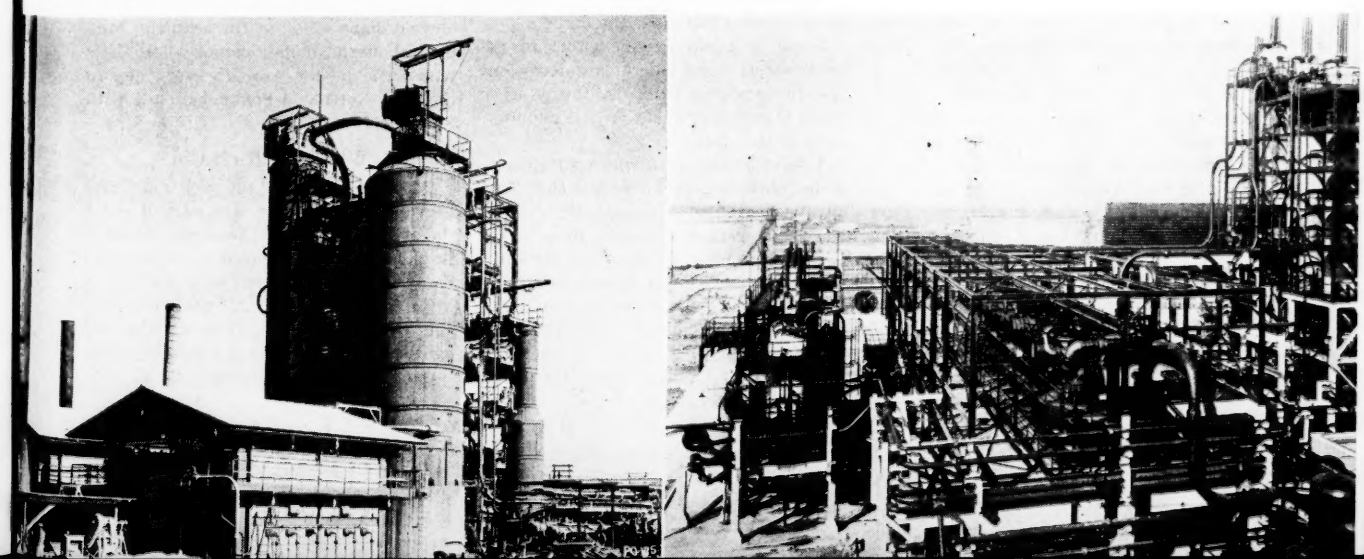
Dewaxing solvents are now commercially available and processes have been developed which have almost completely

(Continued on page 52)

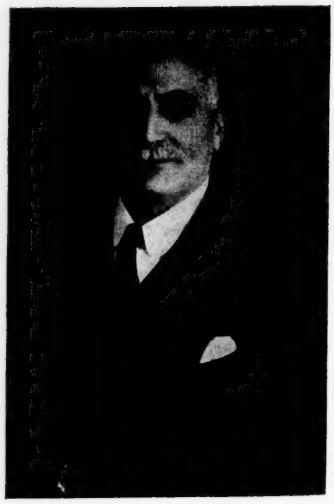
Left—A combination of atmospheric and vacuum distillation unit having a daily capacity of 19,000 barrels of crude petroleum. Right—A catalytic polymerization unit with a capacity of 27,000,000 cubic feet of gas per stream day

Courtesy—Foster Wheeler Corp.

Courtesy—Universal Oil Products Co.



Is it a Crime to Have a Dollar?



BY

Dr. John J. Wicker, Pres.

Fork Union Military Academy, Virginia

THERE are four classes of people in the United States—(1) Capitalists; (2) Evenists; (3) Thieves; (4) Unfortunates.

A capitalist is one who lives on less than his income, whether he is a bootblack or a banker.

An evenist is one who succeeds in paying all his debts and may accumulate enough to have a home or a little farm and stops just there.

A thief is one who insists on spending more than his income whether he is the president of a corporation or a hold-up man.

An unfortunate is one who for some real reason is incapable of taking care of himself.

The first class you do not need to think about—they always take care of themselves. The second class ought to furnish a lot of recruits for the first class. The third class ought to be near a jail. And the fourth class you cannot do too much for.

The only thing that can keep a man's face clean is his own sweat, but there are a lot of people who want to clean up this country on the other fellow's sweat. So far as I am concerned they can go to bed without a bath and stay there; that is, if they will furnish the bed.

Sociology Versus Biology

No kind of legalized sociological legislation can succeed in overthrowing the constitutional laws written in the biology of man and everything else that has life. Yet this is exactly what is being attempted in the United States. You cannot legislate a man, rich or poor, sick or well, educated or ignorant, strong or weak, good or bad. These things depend upon biology. Everything that has life has to fight for it or die. Darwin did not create the struggle for existence, nor yet the survival of the fittest. He discovered these laws in the universe. And these laws are as invincible as God Himself. A good book says, "If a man will not work neither let him eat." This is another way of saying, "Root hog or die." A hog that is unwilling to root ought to die, for no matter what his shape, he is a hog.

The greatest law-giver said, "Six days shalt thou labor," but a lot of people in this country think they are smarter than Moses. Why did Moses say, "Six days shalt thou labor?" To keep us out of devilment. Every man or woman everywhere, under all conditions, needs an honest day's work if they are to live moral lives. A man who is not tired at bed-time is always a moral liability. Work is essential to character.

If you arbitrarily give men short days and big pay you will create a far bigger problem than the one you are trying to solve.

If you put a stovepipe hat on one end, a pair of spats on the other end, a swallowtail coat halfway between, and set it up behind a steering wheel, when it never earned the price of a tire, it is in grave danger of driving down the wrong road and ending in an expensive disaster.

You cannot fit a ten dollar hat on a ten cent head, and the trouble is not with the hat. The most skillful magician in all the world can't make the fit.

There is a nation-wide effort to put swallow-tail coats where overalls belong and the amazing thing is, the political tailor blames the misfit on the manufacturer of the cloth.

A socialist is a man who wants you to divide until he gets the biggest end. That always cures him. A communist is a man who is determined to take both ends, and is willing to blow up the whole structure of civilization to get it. There are a lot of these fellows lying around disobeying the eighth commandment, "Thou shalt not steal," and defying the tenth commandment, "Thou shalt not covet thy neighbor's house or anything that is thy neighbor's."

It is not the size of the check that passes between employer and employee that decides what the check will do, but the size of the man receiving it. If you give a little man a big check, you have the story of the prodigal son. If you give a big man a small check—well, Jesus took five loaves and two fishes and fed five thousand and had twelve baskets full left—all because of the size of the man. It was a sorry day for all concerned when the father divided his living with the prodigal—it brought disaster to all, even though it brought a kind of apparent prosperity while the prodigal was sowing his wild oats. This is the kind of prosperity we have now. For the first time in the history of the world millions of men are being invited to ride down the avenue of destruction in order to enter the palace of prosperity. *Production*, not *destruction*, is the only highway to prosperity.

Men are made through their brains, cattle are made through their bellies, and it is tragic to deal with men as we would with cattle.

The measure of a man's success depends on what he does *beyond* what is *required* of him. "Folks who never do more than they get paid for never get paid for any more than they do."

The Poor Get It All

Some people seem to think that men of money, capitalists, the "royalist class," if you please, are consumers of what they make.

Rockefeller gave away in one year more than he could spend in a hundred, yet he gave every year, and finally to the tune of seven hundred and fifty million dollars.

Look at the libraries of Carnegie all over the country. Even a tightwad like Russell Sage left a fortune that has blessed many—look at the beautiful hundred thousand dollar chapel where girls with little money worship every day in the East Northfield Seminary, built with Sage money.

What the Rich Get

People forget that the rich man gets nerve-health-breaking responsibilities of the great load on him; food that he often is physically ill prepared to digest, and many sleepless nights, with not infrequent suicide. About all the rich man gets out of all his wealth is what he can eat, what he can wear, a house in which

(*Continued on page* 52)

Georgia—With its Wealth of Resources Presents Many Industrial Opportunities

THE map on the reverse side shows resources of the State essential to industry which are found in large variety.

GEORGIA, popularly referred to as the "Cracker" state and named for George II of England, was founded in 1733 when James Edward Oglethorpe and his settlers landed and established themselves on the site of the present city of Savannah. Peace was made at an early date with the Indians but it was not till 1742 that the threat of domination by Spain was dispelled with Oglethorpe's victory at the Battle of Bloody Marsh. Thus, with the establishment of the thirteenth colony, Oglethorpe is credited with having assisted materially in the ascendency of English rather than Spanish rule in America. Georgia's statehood dates from the close of the Revolutionary war.

With an area of 59,265 square miles, 58,725 of which is land area, Georgia ranks twentieth in size and fourteenth in population which in 1937 was estimated at 3,073,000 with the colored race comprising approximately 40 percent.

Climate

GEORGIA has a variety of climate from the mountains to the sea, and is essentially temperate with an average of over 230 growing days throughout the year ranging from about 275 days in the south to 180 days in the north. The first frost usually arrives in early November and the last one is seldom later than the latter part of March.

The average temperature is 62.8° Fah. ranging from 46.6° Fah. in January to 78.2° Fah. in July. The normal annual precipitation averages 50 inches for the entire state. Usually, however, the months of October and November are the driest while the mountainous sections and particularly the Blue Ridge Mountains, have an average annual rainfall of 70 inches or higher which provides adequate surface and ground water supplies.

Transportation

IN the matter of transportation, Georgia has over 6,500 miles of paved highway and 4,240 miles of state road are improved chert. In addition there are more than 100,000 miles of rural roads. Operating within the state are 52 bus routes and 78 motor truck lines. There is no state highway indebtedness.

The railroads, numbering 38, own over 7,000 miles of track and supply adequate passenger and freight transport from almost every section of the state. From Atlanta in the northwest central section of the state air transport reaches all parts of the nation, while various other cities are regular stopping places on regularly scheduled air routes. There are 57 airports and fields strategically situated throughout the state.

Though the general coast line of Georgia is only 100 miles in length, two important seaports are located thereon. Savannah, with a channel averaging 25 feet in depth and about 175 feet in width, has 55 slips or wharves and facilities for all oceanic traffic and is only 17 miles up the Savannah river beyond the bar. Brunswick, in the southern part of the state, is situated on the East river 16 miles from the Atlantic and has a channel ranging from 30 feet deep and 500 feet wide to 20 feet deep and 150 wide. Here there are 22 piers and wharves. The value of exports and imports through these two ports in 1937 was $29,717,313 and $16,458,174 respectively.

Georgia also has a considerable number of waterways, some of which are already classified as commercially navigable and others are to be improved. A pulp and paper mill at Savannah in 1937 reported that 50 percent of their pulpwood was shipped to them by means of the inland waterways.

Manufactures and Finance

THE value of Georgia's manufactured products in 1935 was $523,294,587, or $137,083,681 more than the 1933 total of $386,210,906. Of this amount, $157,759,372 represented the value of cotton manufactures making Georgia the third largest producer in the Southern states. This continues the state tradition as the Bolton factory was the first successfully operated cotton mill in the South. Furthermore, Georgia was the first in the country to grow cotton commercially and it was at Savannah that Eli Whitney invented the first cotton gin. The number of active cotton spindles in 1937 was 3,165,760 which operated a total of 13,815,456,000 spindle hours.

Among other leading industries of the State are those connected with cottonseed, oils and shortenings from this product amounting to over $42,000,000.

The number of wage earners employed in the state's 2,858 establishments is 142,968, with a payroll of $85,570,215. Materials, containers, fuels, and purchased electric power cost $327,843,375 in 1935.

In 1937 Georgia bank clearings totaled $3,103,524,000 being surpassed by only three other states of the South. With $33,828,000 invested in capital stock, capital notes and debentures in the state's 285 banks, aggregate resources were $443,294,000 and individual deposits, $377,094,000. Savings deposits in all banks of $108,160,000 were over $4,000,000 greater than in 1936.

Agriculture

GEORGIA is predominantly agricultural with over 40 percent of the state's gainfully employed population engaged in that pursuit.

From the 10,739,100 acres planted to crops in 1937, Georgia farmers received a total cash income of $157,894,000—$117,591,000 from crops and $30,273,000 from livestock and livestock products. The largest single crop was cotton and more than 1,500,000 bales of lint were picked from 2,661,000 acres. The cash income derived from this source was $60,800,000, while an additional $12,400,000 was received from the resultant 666,000 tons of cottonseed. The other principal sources of cash farm income were tobacco $14,400,000 and peanuts $9,905,000. Other crops adaptable to industrial use through the medium of chemical treatment and grown on a major commercial scale are corn, sugar cane and sweet potatoes.

Early realization of the importance of agriculture to the state is evident from the fact that the first state agricultural experiment station was established in Georgia in 1735.

Although the general coast line of Georgia is only 100 miles, the shore line consists of approximately 1,000 miles. In years gone by fishing was a thriving business, but of latter years circumstances have contrived to reduce the volume. Effort is being made now by private and official interests to rehabilitate the industry by eliminating polluted areas and encourage restocking of the productive waters. The total value of fisheries in 1936 was close to $500,000 which represents a considerable increase over immediately preceding years and includes a large quantity of menhaden for industrial use only.

Timber and Naval Stores

AS a forest region, Georgia occupies an important position with approximately 22,872,000 acres of forest land or 58 percent of the total land area. Of this forest area saw timber covers over 7,000,000 acres and the stand of available saw timber is estimated to exceed 20,000,000,000 board feet. The cordwood volume is in excess of 200,000,000 cords including 123,000,000 cords of pine and 79,000,000 cords of hardwoods.

In 1936, 872,476,000 board feet of lumber was sawed, 766,-

010,000 board feet of softwood and 106,466,000 board feet of hardwoods while the value of lumber products in 1935, the latest year for which figures are available, was $13,214,000. Apart from saw timber, Georgia forests provide the bases of two major industries—pulpwood and naval stores.

Since the advent of Dr. Charles H. Herty's experiments with Southern pine for newsprint at Savannah, the growth of the pulp and paper industry in the Southern states has been phenomenal. Already two large mills are established in Georgia representing an investment of between $15,000,000 and $20,000,000, and others at present are considering selected locations. The pulpwood for these mills will all come from local forests which for about 20 years have been supplying vast quantities to North Carolina and Tennessee. The ability of Georgia forests, where pines reach pulpwood size in ten years, to supply adequate quantities for these and other needs is attested by the fact that in 1936 the new growth was 8.4 million cords (5.5 million cords of pine and 2.9 million cords of hardwoods) compared with a consumption of only 5.8 million cords (4.3 million cords of pine and 1.5 million cords of hardwoods).

Perhaps the most important phase of Georgia forest industries at present, is the production of naval stores. For years Georgia has been the foremost producer of resins in the United States and in the last naval stores season there were produced in 31 naval stores producing counties 295,809 barrels (50 gallons each) of turpentine and 982,086 barrels (500 pounds each) of rosin. Savannah, which has been exporting these commodities to all parts of the globe from the earliest days still maintains the reputation of being the largest naval stores market in the world. Georgia's production is not only more than half of the entire country's total, but more than double the second largest United States producer.

Minerals

THE mineral resources of Georgia, like many of the Southern states, have not yet been adequately explored. In spite of this fact, a wide variety of minerals have been produced for many years and while production decreased in value at the beginning of the present decade, this was due, not to the exhaustion of deposits but to general economic conditions, and the trend of industrial evolution. More recently the value of Georgia mineral production has increased until in 1936 it reached $12,640,200. The change was brought about by the large variety of minerals which Georgia could supply. As the demand changes so does Georgia appear to have that which is required. Evidence of this is in the fact that no less than 35 different rocks and minerals have been mined commercially at some period of the state's history.

On the accompanying map are indicated those minerals which now are being commercially produced. Other deposits of these varieties are known to exist in several other counties and will possibly yield to commercial production after further examination as to quality and quantity.

Georgia has numerous deposits of asbestos which, consisting of the short fibre kind makes it suitable for incorporation with cement, plaster and paint manufactures.

Corundum deposits are extensive and at one time produced the largest quantity in the country. Both feldspar and fluospar are believed to be available in commercial quantities.

Graphite of the amorphous and crystalline varieties is abundant and found in several localities.

Iron ore, which has been mined for nearly one hundred years and continues to be sent to Birmingham, consists of brown and red ore and a considerable reserve exists.

Georgia marble, which is internationally known and quarried in only a few places, is available in numerous counties and the total supply is stated to be inexhaustible. In addition to the white, mottled gray and flesh-colored varieties now produced, other colors are to be found including possible commercial quantities of serpentine, sometimes called Verde Antique or green marble.

Pyrite and travertine are also known to exist in commercial quantities though they are not at present so produced.

Seeps of crude petroleum oil have been reported in the Southern part of the coastal plain region which is underlain by rocks of the same age and general formation as some of those in which gas and oil have been found in the Gulf states. Within recent months several concerns started drilling but after reaching rock operations ceased and a magnetometer survey is now under consideration.

Other minerals include chromite, copper, gold, olivine, and vermiculite.

Electric Power

GEORGIA is generously supplied with electric power generating facilities and is capable of supplying all normal demands that are likely to materialize.

In 1937, production of electricity by public and private plants in the state totaled 1,742,160,000 kilowatt hours, which represents an increase of well over ten percent beyond the 1,555,095,000 kilowatt hours produced in 1936. Of the 1937 amount, 354,375,000 kilowatt hours were from plants operated by fuels, which was less than 25 percent of the total. The remaining 1,387,785,000 kilowatt hours came from hydroelectric plants.

The total capacity of generators in power plants operated by 18 companies in the state is 475,479 kilowatts. Water power facilities in 23 plants have a capacity of 488,240 kilowatts and steam power generators in 9 plants have an additional capacity of 122,492 kilowatts. Six internal combustion engine plants and four combination plants together have the remaining capacity of 17,834 kilowatts.

The principal hydroelectric generating facilities and their capacity are as follows:

21 Georgia Power Company plants	498,202	Horsepower
1 Tennessee Electric Power Co. plant ..	30,000	"
1 South Carolina Power Company plant	25,000	"
1 Crisp County, Ga. plant	9,600	"

Taxation

ALTHOUGH there is no state tax exemption for new industries in Georgia, individual counties numbering one hundred or more and about 140 cities have voted to exempt new industries and additions to old ones from taxation.

The advalorem tax, not to exceed five mills and assessed at approximately 25 percent to 35 percent of actual valuation, is composed of two divisions. The first is physical property which includes real estate, buildings, machinery, raw materials, finished products, etc., and the second, comprising personal property, includes cash, notes and accounts receivable, and stocks and bonds.

The tax on corporations incorporated under the laws of Georgia, except those that are not organized for gain or profit and domesticated foreign corporations, ranges from $10 for corporations with issued capital stock not exceeding $10,000, to $5,000 for corporations whose capital stock is over $22,000,000.

City and county taxes average throughout the state, 35 mills on the assessed valuation. In Atlanta the assessed valuation on property is about 70 percent of fair valuation.

The state law applying to corporation income tax states that "Every domestic corporation and every foreign corporation shall pay annually an income tax equivalent to five and one-half percent of the net income from property owned or from business done in Georgia, provided, that the amount of the tax shall not be less than would be produced by applying a rate of two percent to a base consisting of the entire net income, plus all salaries and other compensation to all elected and appointed officers, and to the stockholders owning in excess of five percent of the issued capital stock of the corporation or a relative per centum of the capital stock of any other corporation owning or holding the capital stock of such corporation, and after deducting from such base $10,000 and the deficit, if any; such tax shall be assessed upon the base provided by this section which will produce the greater tax."

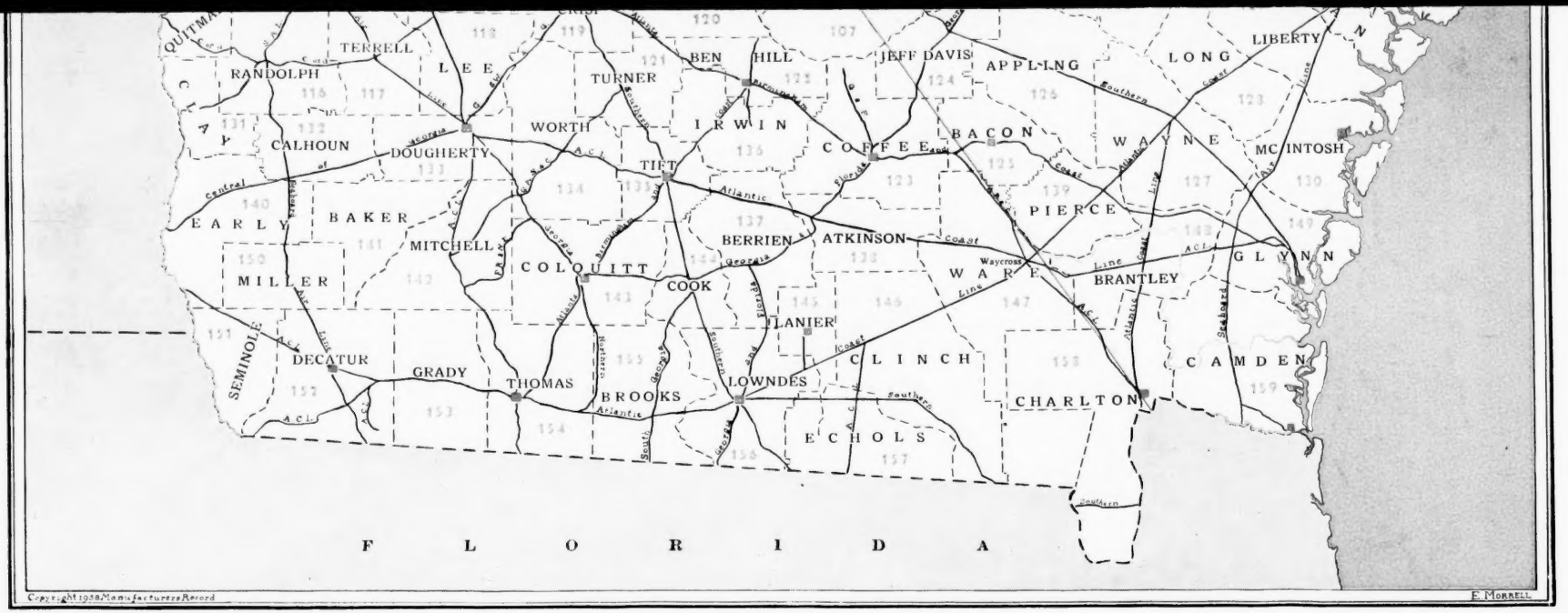
Labor and Wages

THE population of Georgia, which consists of 99.2 percent native born people, is essentially decentralized with the urban population comprising about 30 percent. There are four cities with populations exceeding 50,000. Atlanta, 272,000; Savannah, 85,000; Augusta, 61,000; and Macon, 55,000.

Labor, of which there is a plentiful supply, is willing and intelligent and available for skilled and unskilled work in virtually every part of the state.

The prevailing wage rate varies with the industry and location. However, with certain exceptions, the following are averages per hour based upon density of county population. Over 100,000: unskilled labor, 30 cents; semi-skilled, 42½ cents; and skilled, 80 cents. Counties with population between 25,000 and 100,000: unskilled, 25 cents; semi-skilled, 37½ cents; and skilled, 70 cents. Counties with population between 5,000 and 25,000: unskilled, 20 cents; semi-skilled 30 cents; and skilled, 60 cents. Counties with populations of less than 5,000 each are approximately 5 cents less in each category.

The wage rate exceptions noted above are confined to skilled labor in a variety of trades in about 25 counties. In these instances the rates vary from 60 cents to $1.25 per hour and altogether average 85 cents hourly.



GEORGIA

Its principal raw materials and transportation facilities, with facts on the reverse side pertaining to its industrial growth and opportunities for industry.

Mineral — *Counties in which mineral is commercially produced*

Barite—
Bauxite—
Clay—
Coal—
Fuller's earth—
Gold—
Granite—
Iron ore—
Kaolin—
Kyanite—
Lime—
Limestone—
Manganese and manganiferous ore—
Marble—
Mica and micaceous minerals—
Ocher—
Sand and gravel—
Slate—
Talc and soapstone—
Tripoli—

Timber

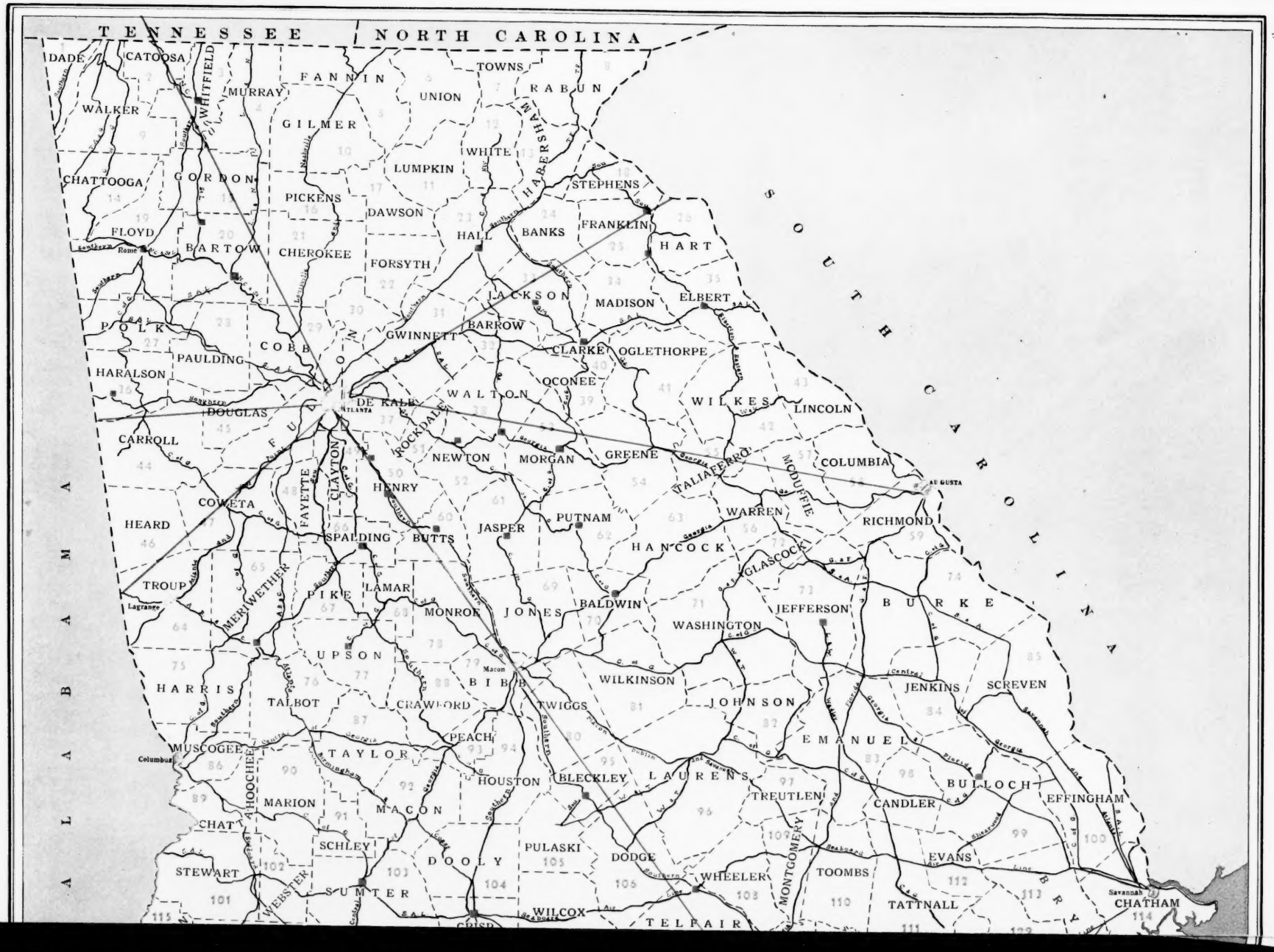
Longleaf—slash—
Longleaf—slash—cypress—
Shortleaf—hardwoods—
Shortleaf—loblolly—hardwoods—
Loblolly—hardwoods—

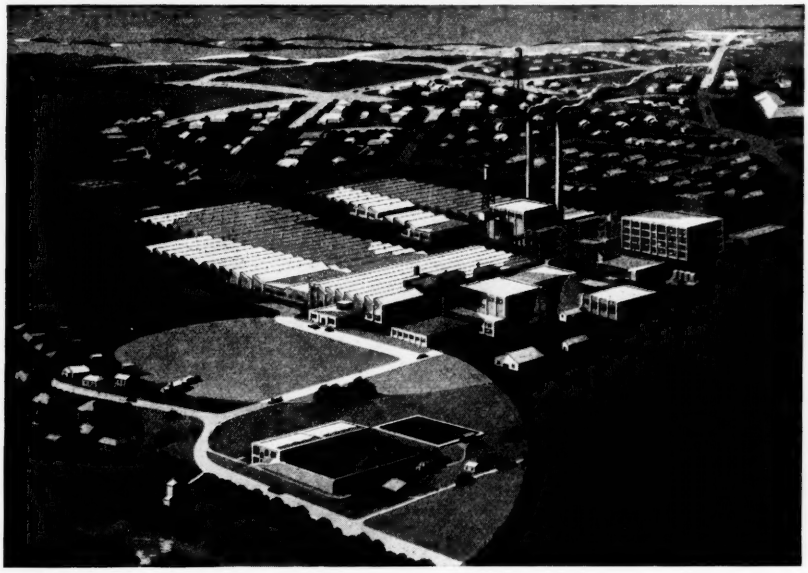
Naval stores—

Natural gas is available for consumption in the following counties:—15, 19, 20, 27, 30, 36, 44, 45, 47, 49, 50, 66, 68 to 70, 77 to 79, 81

Agricultural products such as cotton, corn, peanuts, sweet potatoes, etc., which are used for industrial purposes, are grown in almost every county.

Railroads
Navigable Rivers
Airlines
Airports—also at principal cities printed in red.


TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
ALABAMA
DADE
CATOOSA
WHITFIELD
MURRAY
FANNIN
TOWNS
RABUN
WALKER
GILMER
UNION
HABERSHAM
WHITE
LUMPKIN
CHATTOOGA
GORDON
PICKENS
DAWSON
STEPHENS
FRANKLIN
HART
FLOYD
BARTOW
CHEROKEE
FORSYTH
HALL
BANKS
JACKSON
MADISON
ELBERT
POLK
COBB
GWINNETT
BARROW
CLARKE
OGLETHORPE
PAULDING
HARALSON
OCONEE
DE KALB
ATLANTA
WALTON
WILKES
LINCOLN
DOUGLAS
CARROLL
ROCKDALE
NEWTON
MORGAN
GREENE
COLUMBIA
AUGUSTA
HENRY
COWETA
FAYETTE
CLAYTON
TALIAFERRO
MODUFFIE
HEARD
SPALDING
BUTTS
JASPER
PUTNAM
WARREN
RICHMOND
HANCOCK
GLASCOCK
TROUP
LAMAR
PIKE
MERIWETHER
LaGrange
MONROE
JONES
BALDWIN
JEFFERSON
BURKE
WASHINGTON
UPSON
Macon
BIBB
WILKINSON
JENKINS
SCREVEN
HARRIS
TALBOT
CRAWFORD
TWIGGS
JOHNSON
PEACH
EMANUEL
MUSCOGEE
Columbus
TAYLOR
HOUSTON
BLECKLEY
LAURENS
TREUTLEN
BULLOCH
EFFINGHAM
CHATTAHOOCHEE
MARION
MACON
CANDLER
CHAT
SCHLEY
PULASKI
DODGE
EVANS
STEWART
DOOLY
WHEELER
TOOMBS
MONTGOMERY
SUMTER
WEBSTER
WILCOX
TATTNALL
Savannah
CHATHAM
CRISP
TELFAIR



BUILDING GEORGIA

We have designed and supervised the construction of millions of dollars of industrial development in Georgia.

The knowledge of conditions gained from that activity is at your service. We offer a staff of trained engineers, and an experience which has placed upon our list of active clients many of America's largest industrial corporations.

We are prepared to translate your production requirements into buildings and machinery—on a Georgia site.

ROBERT AND COMPANY
INCORPORATED
LAWRENCE WOOD ROBERT, JR., *President*
Architects and Engineers
ATLANTA, GA.

TO INDUSTRIES SEEKING LOCATIONS IN SOUTHEASTERN TERRITORY

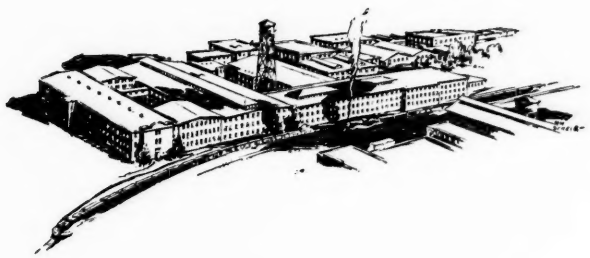
THE Southeast offers unusual advantages in unsurpassed transportation and power facilities, vast quantities of raw materials and a mild all-year climate which permits continuous operation with no interruptions due to severe weather. In addition to its other advantages, the Southeast's mild climate results in substantial savings to industry in construction and operating costs and affords to employees better standards of living at lower living costs.

The Atlantic Coast Line Railroad, through its Development Service, will gladly furnish information regarding industrial opportunities, sites, warehouses and raw materials in territory served by its lines in Virginia, North Carolina, South Carolina, Georgia, Florida and Alabama.

Inquiries may be made to:

J. M. FIELDS
Manager Development Service
Wilmington, North Carolina

ATLANTIC COAST LINE RAILROAD



For Example!

THESE THREE *are wide-open industrial opportunities in a state jam-packed with promise*

OPPORTUNITY NO. 1

Manufacture of light-colored dense and vitrified heavy clay products—such as acid ware, vitrified tile.

OPPORTUNITY NO. 2

Manufacture of insulating materials, such as mineral wool—from argillaceous limestones and the vermiculites found in Georgia.

OPPORTUNITY NO. 3

Manufacture of a wide variety of glass products, because of the occurrence in Georgia of unusually pure quartz silica, and availability of natural gas.

GEORGIA offers exceptional advantages for the manufacture of a wide variety of products —and a tremendous market now entirely dependent on other sections for its supply of a host of the necessities and accessories of life.

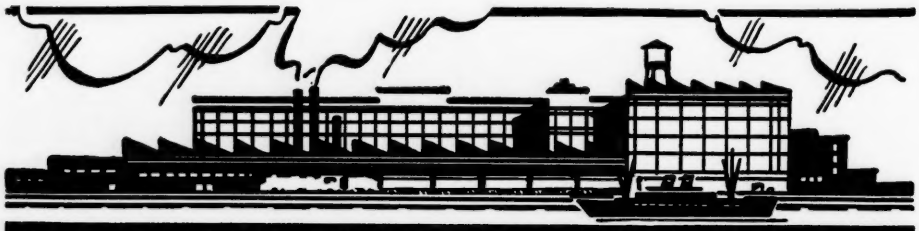
Georgia's wealth of raw materials is graphically shown in the map carried in this issue of MANUFACTURERS RECORD on pages 19-22. Added to this rich natural endowment are an abundant supply of intelligent, adaptable labor; a network of splendid highways and railroads adequate for all shipping demands—plus two active seaports; equable year 'round climate; accessible fuel, and an abundant, dependable supply of uniformly low-cost electric power in the small towns and villages, as well as in the largest cities.

The manufacturing opportunities cited on this page are chosen at random from an almost endless list. Full information about these and other specific possibilities in Georgia are quickly available to interested executives. Simply write to

Industrial Department

GEORGIA POWER COMPANY

ATLANTA



TO AID AND PROTECT INDUSTRIAL DEVELOPMENT IN THE SOUTHEAST

WE, THE GOVERNORS • • •

WITH a view to aiding industrial expansion of our section and the stabilization of employment we, the Governors of the Southeastern States, set forth the following objectives:

- **1** *Equitable freight-rates as affect the Southeast.*
- **2** *Uniform taxation policies.*
- **3** *Friendly labor attitude between employer and employee.*
- **4** *Cooperation with Federal Government on proper major policies affecting industrial development.*

It will be our aim by working together on these objectives to maintain conditions favorable to sound industrial development so that the Southeast will reap the full benefits of the ever-increasing trend toward Industrial Decentralization, and gain a proper balance between Agriculture and Industry.

Southeastern Governors Conference

GOVERNOR OF NORTH CAROLINA

GOVERNOR OF SOUTH CAROLINA

GOVERNOR OF ALABAMA

GOVERNOR OF GEORGIA

GOVERNOR OF FLORIDA

GOVERNOR OF LOUISIANA

GOVERNOR OF TENNESSEE

GOVERNOR OF KENTUCKY

GOVERNOR OF MISSISSIPPI

LAWRENCE WOOD ROBERT, JR.,

Executive Director, Ilona Allen Bldg., Atlanta, Ga.

The Growing and Processing of "Whole Cotton"

A Maximum of Cellulose and Oil Produced in 26 Weeks After Planting

BY

Frank K. Cameron

Professor of Chemistry, University of North Carolina

IT was shown in 1931 that cotton can be planted in narrowly spaced rows with a mechanical seeder, and cultivated with a harrow. It was further shown that this procedure is effective in hastening maturity. Dockery found that a maximum of cellulose and oil was produced in 25 to 26 weeks after planting. Thus grown, the cotton can be mowed and baled with the same equipment that is used for hay. The John Deere Plow Company, with an assembly of standard equipment, showed the cotton can be harvested and bales deposited on a cart, without the material coming into contact with the ground and at a very small cost per acre.

Ordinarily, the cotton farmer does not have the equipment for the operations just cited, nor does he look with favor upon close spacing. His ideal is to produce as fine individual plants as possible, for which wide spacing of rows and individuals within the row is necessary, whereas in growing "whole cotton" the purpose is to obtain the maximum production of cellulose and oil *at a given time*, and the pragmatic way to attain this is to sacrifice the possibilities of the individual plants, by enforcing an early maturity. Economies in seed and in repeated cultivations or "choppings" are also important objectives.

The North Carolina and South Carolina Departments of Agriculture and State Experiment Stations cooperated with us in 1937 by growing cotton in the normal spacings of their vicinities and in rows separated by half the normal distances. Half the plots were given the usual fertilizer applications, while a duplicate set was given none. Mexican Big Boll cotton was grown at the Upper Coastal Plains Station near Rocky Mount, N. C., and the Piedmont Station near Statesville, N. C. At the Pee Dee Station near Florence, S. C., and the Dockery Farms, near Rockingham, N. C., the varieties tested were Coker 100, Farm Relief 4, and Clevewilt 6, the seeds being the generous gift of Dr. David R. Coker, of Hartsville, S. C. All plantings were on a fine sandy loam.

Adding fertilizers increases yields, and generally (though not always) it will pay to do so. It would seem wise, however, to omit the usual top dressing of sodium nitrate. The yield for 18-inch spaced rows was generally greater than for rows spaced 36 or 40 inches, a fact that emphasizes the desirability for more tests at even closer spacing. The variety had a great bearing on the yield, Coker 100 and Mexican Big Boll being decidedly better than the others. But these are highly-bred strains producing a very long staple, whereas length of staple is of little or no moment for whole cotton. It would appear that the services of a plant breeder would be helpful in developing a plant to yield a high proportion of seed cotton to stem and irrespective of length of staple.

From the work done so far, it may be concluded that an average yield of two tons per acre is entirely feasible. Much higher yields have been attained. Much depends upon the skill and energy of the grower, and whole cotton is no panacea for failures of the neophyte or laggard. About 45 per cent of weight is lost in air-drying. The recovery of alpha-cellulose, in small laboratory-scale experiments, has averaged better than 45 per cent of the dry weight. The yield compares favorably to that obtained from growing trees, has the advantage of being garnered annually, and in addition there should be a yield of about 6 per cent (on the air-dry weight) of vegetable oil and the other use of the land for nearly half the year.

It is difficult to estimate growing cost, since some items differ widely from year to year. Greene, of the North Carolina Experiment Station, has attempted it. Probably the data for 1934 may be assumed as nearly representative as can be expected. In a study of 78 small cotton farms in North Carolina with an aggregate of 1638 acres, Greene has, by the cost route method, found the cost of growing lint cotton to be $23.88 per acre. He has allowed $10.07 for the seed recovered and charged $4.19 per acre for the use of the land. No allowance for seed should be made in the case of whole cotton, since the value recovered from it goes to the manufacturer and not to the grower. It seems wise to omit rent of the land as too variable, and probably balanced by the land use between cotton crops. Making reasonable adjustments for the several items as they should apply to the growing of whole cotton, a total of about $15.00 per acre is obtained. This also is the cost found in growing whole cotton at the Dockery Farms. But the yields were about 2.5 tons of dry whole cotton to the acre, and the cost per ton of raising whole cotton was $5.16-$5.82. Assuming a recovery of 45 per cent, the cost of producing alpha-cellulose in the form of whole cotton is 61 cents per pound.

The air-dried whole cotton is easily comminuted. Three types of mill have been tried, but dry grinding in a hammer mill has proved generally satisfactory. True, the experimental work has been on too small a scale to justify attempts at estimating pulverizing costs; but it is safe to say they will be found less than the corresponding operations of debarking and chipping wood. The bark or "skin" on cotton stems is undesirable, and perhaps gives rise to annoying difficulties, sometimes, with the refining of the oil from cotton.

For extracting the oil, it has been found advisable to use a rather low-boiling petroleum (70°C.—). For the best results it seems wise to avoid long storage. Under favorable conditions the oil extracted is readily refined by standard methods, with slight modifications. In other cases, however, there is present a coloring component coming apparently from the bark of the stems, and the most persistent efforts have not produced an oil which meets the standards for food, although probably satisfactory for all other uses of cottonseed oil. The cost of recovering the oil cannot be computed from the experimental data because of the small size of the operations. The yield of oil averages about 6 per cent of the dry weight of the plant, and larger yields have been secured occasionally. There seem to be no special difficulties involved, and the technique of oil extraction is so well established, further studies in this direction have been postponed.

It has been found desirable to subject the extracted whole cotton to a short "cook" with a dilute alkali solution, one to 2 per cent NaOH. Softening of the woody particles is secured, aiding greatly subsequent penetration by the pulping agency. Much coloring matter is removed, aiding the subsequent bleaching operations. The black liquor obtained contains practically all the nitrogenous matter from the whole cotton, and the practicability of recovering useful proteins is being studied at the Mellon Institute.

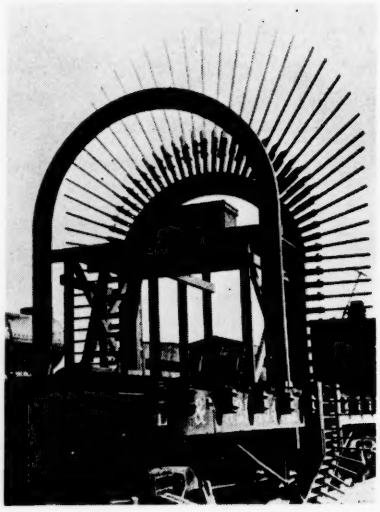
After pressing and rinsing the black

(*Continued on page 52*)

Railroads Spend $50,000,000 Annually in Georgia

"National prosperity is geared to railway prosperity." Thus John J. Pelley, president of the Association of American Railroads, recently concluded a statement in which he pointed out that the railroads of the United States normally purchase more than one-fifth of the nation's coal and approximately one-fifth of the nation's forest products, iron and steel products and fuel oil, and that they spend many millions of dollars annually for locomotives, passenger and freight cars, equipment accessories, machinery and a wide variety of manufactured products drawn from every state in the Union. Moreover, their payrolls and taxes contribute to the well-being of cities and towns throughout the nation.

One has only to consider the important role which the railway industry plays in the economic life of any Southern state to be struck by the force of Mr. Pelley's epigram. Take Georgia, for example. For more than a century the railroads have been a major factor in the economy of this great Southern state. Georgia was one of the first states in the Union to foster the development of railroads. Its pioneer railroad was chartered in 1831, only a few months after the historic "Tom Thumb" made its trial run at Baltimore. By 1840 Augusta and Athens were connected by rail; by 1843 another line was in operation between Savannah and Macon, and by 1846 three rail lines radiated from Atlanta. In 1850, with 643 miles of railroad within its borders, Georgia outranked every other Southern state in railway development. From that time forward the growth of the state's railway system was rapid, mounting to 1,347 miles in 1860, to 1,827 miles in 1870, to 2,525 miles in 1880, to 4,600 miles in 1890, and to 5,652 miles in 1900. Since then some 810 miles have been added, bringing the total present railway mileage in Georgia up to 6,462. This extensive



Louisville & Nashville car used in testing tunnel clearances

system of railroads, forming an integral and essential part of the nation's great railway network, provides a transportation service of fundamental importance to hundreds of cities, towns and farming communities and thousands of industrial enterprises throughout the state.

Important as railway transportation is to the three million and more people of Georgia, however, that is by no means the only contribution which the railroads are making to the state's progress and prosperity. Railroads are among the foremost spending agencies in Georgia. Their spending extends into nearly every community in which they operate.

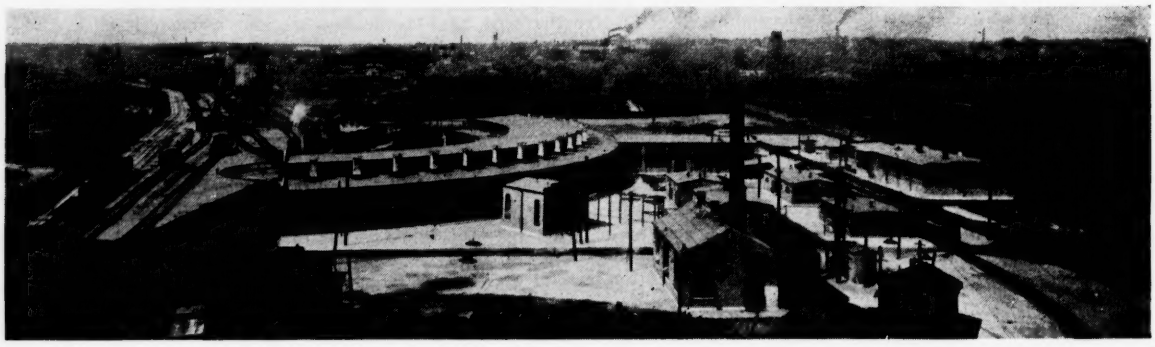
Last year, when net railway operating income was less than half what it was before the depression, some, but not all, of the railroads, plus the Pullman Company, reported purchases, taxes and payroll expenditures in Georgia of more than 43 million dollars. Even this large sum does not include purchases made by two Class 1 railroads or the purchases, taxes and payrolls of twenty-seven smaller railroads in Georgia. Nor does it include money spent in the state by the Railway Express Agency, the Southeastern Express Company, the Fruit Growers Express and other companies closely allied to the railway industry. If the total 1937 expenditures in Georgia of all railroads for materials and supplies, taxes and labor were added together, they would probably approximate 50 million dollars.

There have been years when the railroads spent much more than this sum in Georgia, and there have been years when they spent less. Railway buying and railway payrolls expand and contract with the rise and fall of railway earnings—especially earnings after operating expenses, rentals and taxes have been paid.

In their more prosperous years the railroads purchase large quantities of crossties, switch ties, piling, poles, cross-arms, bridge timbers and rough and dressed lumber from Georgia producers for construction and maintenance of tracks, bridges, trestles, stations, section houses, platforms, freight cars and for other railway uses throughout the country.

During the comparatively prosperous period 1925-1929, when the railroads as a whole earned 4 per cent or better on their property investment, their expenditures for forest products in the United States averaged 170 million dollars annually, whereas, during the five depression years 1931-1935, when the railroads earned from 1¼ to 2 per cent on their property investment and when many roads operated "in the red," railway expenditures for forest products averaged only 58 million dollars annually. In 1936-1937 railway earnings advanced slightly, to around 2-1/3 per cent on their invest-

Southern Railway round house at Macon, Georgia



ment, and purchases of forest products increased to 91 million dollars. Since August, 1937, railway earnings have declined sharply, and purchases have slumped correspondingly.

This ebb and flow of railway purchasing power is quickly reflected in reduced or increased payrolls and expenditures in many communities where forest industries are the backlog of local business activity.

In addition to their purchases of forest products, the railway shopping list in Georgia includes iron and steel products, structural shapes, plates and bars, castings, sand and gravel, petroleum products, cotton waste, cotton duck, belting, air brake hose, air signal hose, rubber hose, electrical equipment, disinfectants, liquid soap, stationery and printing, office supplies, paints and varnishes, hardware supplies, cement, brick, water, ice, dining car provisions and medical supplies. Railroads also spend substantial sums in Georgia for laundry service, telephone and telegraph service, electrical current, water service, advertising and rental.

Railway expenditures in Georgia for materials and supplies are not confined to a few of the principal industrial and commercial centers, but are widely distributed in the state. This is evidenced by the fact that in 1937 some, but not all, Class 1 railroads in the United States reported purchases in 330 cities and towns located in 128 of the 159 counties of the state.

Moreover, Georgia counts among its customers many railroads located in distant parts of the country. According to an analysis of railway purchases by the *Railway Age*, 69 Class 1 railway companies in the United States out of 100 filing returns reported purchases of materials and supplies in Georgia during 1937. Of these, six were in New England, twelve were in the Great Lakes region, ten were in the East Central region, four were in the Pocahontas coal region, sixteen were in the Southern region, six were in the Northwestern region, eight were in the Central Western region, and seven were in the Southwestern region. Sixty-two of the sixty-nine railroads reporting purchases in Georgia do not own or operate mileage in the state.

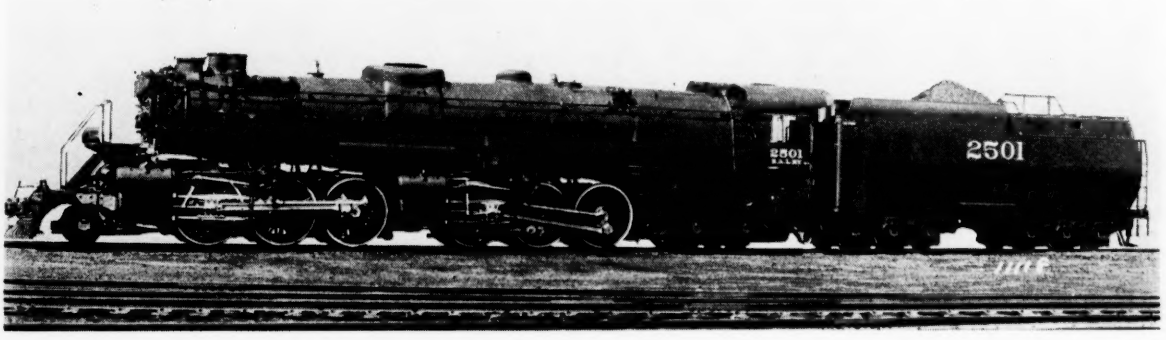
In Georgia the railroads purchased materials and supplies in 330 cities located in 128 of the state's 159 counties

One large Eastern railroad made purchases in 114 cities and towns, and another made purchases in 73 cities and towns in Georgia. The home railroads were by far the state's best customers, however. Seven railroads operating approximately 70 per cent of the railway mileage of Georgia reported purchases in the state aggregating $4,280,498 last year. Sixty-two non-resident railroads and the Pullman Company are known to have spent $1,356,000 additional in Georgia last year, bringing total known purchases by 69 railway companies and the Pullman Company up to $5,636,000. It is reasonably certain that many other railway companies from which reports were not obtained made substantial purchases in the state.

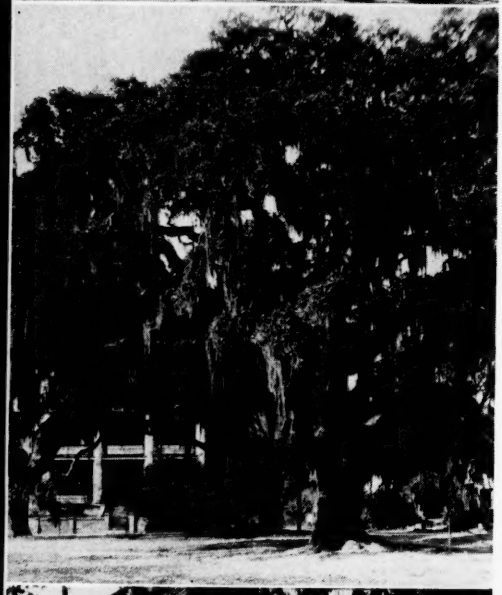
Even more widespread than railway purchases in Georgia is the distribution

(*Continued on page 52*)

Seaboard Air Line Railway locomotive 110 feet long built primarily for fast freight service.



The South Carolina Low Country



Top—Twickenham plantation home of R. J. Turnbull, Beaufort Co. Center — A Colonial home, Beaufort. Lower — St. Helena Episcopal Church, Beaufort, established by Act of Assembly 1712

IN all the South Carolina "Low Country," where plantation life as known in the days before the Civil War is still enjoyed, there is probably no more enticing area in its natural surroundings than that adjacent to the towns of Beaufort and Port Royal on the East coast. They lie approximately 75 miles South of Charleston on the Beaufort River, which gives access to the Atlantic by way of Port Royal Sound, and are outlets for a section of great natural wealth, inviting to industry and capital.

In writing about the commercial advantages of an area so charming, it is difficult to put aside even momentarily the appeal it makes as a place in which to enjoy the worthwhile things of life. The perfume of flowers and the songs of birds are a lullaby to the tired man of business. Here at last is a spot removed.

We follow a main road to the Edisto River, going South after leaving Charleston, and branch off to the Southeast from the Edisto into an Eden of live oaks and beautiful rivers, and manor houses that in their setting and magnificence would grace any state or country. The journey is over a splendid highway, and it is hard to realize that as the motor speeds along, all too fast, we are traversing some of the most historic ground of America. Men of means from other sections have bought plantation homes here with their surrounding broad acres and century old trees that seem to defy time.

Fields are in an excellent state of cultivation, the work being done by negroes and the serenity of plantation life of long ago is seen again in the evident happiness of these people of the colored race.

Mid-day dinner at the Gold Eagle Tavern at Beaufort is a feast to be remembered. The Gullah negroes who wait on the table are from the islands off the coast. Their familiarity with white folks might be misunderstood by some people who are uninformed, as certainly their dialect would be incomprehensible. But the white folks are "our" people, whom they have adopted. If the food they hand you is not partaken of freely, they seem to suffer a personal hurt.

The origin of the word Gullah is not known, but their history, since they came to America as slaves, is interesting. While intensely superstitious, they are exceedingly amiable, and their population is remarkably free from crime. Beaufort County has never had a case of rape or lynching. Homicide is practically unknown. Labor today is as faithful as it was in former times.

From 1,000 to 1,500 of them own 10-acre farms and houses. A farm of that size in this section, with salt water food practically at their door, means a competence.

It is said they do not have in their vocabulary more than 1,700 words. As one writer puts it, it is a short-cut language, and cites as an example the Gullah word "bruck," which means a number of things—break, broke, breaking, broken arm, broken leg.

In a pamphlet issued by the Chamber of Commerce of Beaufort, the same writer states—"than this Gullah negro, no laborer in America, and also for so many hundreds of years, has stood so bravely and faithfully by his task. It is this Gullah negro that made the silk, the indigo, the rice, the Sea Island Cotton, and the phosphate industries of the Carolina Coast possible. He is still there, but works today mostly for the farm truckers and for all local modern industries he still offers his attractive services."

The Gold Eagle Tavern deserves more than a passing word. It has the structure and atmosphere of an English Inn of an older day, with beamed ceilings, twisted stairways and public rooms at different floor levels. The property of which the Tavern forms a part was the Beaufort residence of the plantation owner Henry Williams Desaussure, who was appointed by President Washington in 1794, Director of the U. S. Mint. It was he who called on President Washington with a handful of Half Eagles, the first coined in the United States.

Here is a land rich in possibilities for commerce and with facilities for successful enterprise. There are hard-surfaced and secondary roads everywhere, besides adequate railroad and water transportation and power facilities which, through local stations and hook-ups that are available with other lines, are more than ample for every contingency.

The climate is not the least of the advantages of this part of the South. The annual mean temperature is 62 degrees, with sunshine averaging from 50 to 60 per cent of the time. Those who visit this East coast country recognize at once the ideal conditions under which the population lives — conditions which insure contentment.

Forty years ago, Port Royal, in favor with the government, was on the list of

harbor improvements that would have made it a great seaport. Politics are blamed for the plan being changed, but the advantages it had then still are there. In Port Royal Sound there is abundant channel depth and ample sea room for the largest ships. Several fleets could anchor there.

Parris Island, adjoining Port Royal, became famous in modern times when America entered the World War and established there a training camp for U. S. Marine recruits. It has been that ever since, in the meantime having expanded until it is one of the main stations of the Marine Corps.

It was on Parris Island in 1562 that Ribaut, a French Huguenot, with his followers, first set foot on American soil. A monument marks the spot where their landing was made.

Interesting and convincing data has been compiled by the forward-looking citizens of the section as to the advantages offered to industry. The forested areas in coastal Carolina, composed of pine bearing lands, appear to be ample for the profitable operation of paper mills. In addition to the raw material, labor is plentiful, while fresh water rivers extending 30 miles into the back country, and an abundance of underground water available through artesian wells, insure a supply for all industrial purposes.

In the counties of Beaufort, Jasper, Colleton, Hampton, Allendale and Barnwell, which constitute a large part of the Low Country, there is a total population, according to the 1930 census, of 109,372. Of this number, there are 272 foreign born, or one-fifth of one per cent.

The principal occupations are agriculture, lumber, turpentine production and canning.

A mill village would be necessary for a plant located at or near Port Royal in order to have workers nearby. However, owing to favorable climatic conditions such a village would not involve a heavy capital outlay.

South Carolina has adopted a reasonable workmen's compensation law, and in 1936 the Legislature passed an unemployment compensation act in accord with the national act.

In the assessment of real and personal property for taxation, returns are made at approximately 50 per cent of actual value. The property is then assessed at 42 per cent of the value shown on the return, which brings the assessment to approximately 21 per cent, or less, of the real value.

Both Port Royal and Beaufort County exempt new industries from county and local taxes, except for school purposes, for a period of five years from the date of establishment. There is no exemption from direct state taxes, nor from school taxes.

Every corporation doing business in the state, using a part of its capital or plant in the state, is required to pay an annual license tax of three mills on each dollar paid in on the capital stock.

The state has an income tax which exempts income received from obligations of the United States or of the State of South Carolina or any political sub-division. The income tax rate is 4½ per cent of the entire net income received during the income year. Foreign corporations are required to pay 4½ per cent income tax on business done and transacted within the state, computed by taking into account a fair cash value of the real estate and tangible personal property located in South Carolina and the proportion it may bear to the cash value of the entire real estate and tangible property wheresoever located.

Future of Chemical Industry Is Bright

In an editorial article which will appear in the August issue of Industrial and Engineering Chemistry, published by the American Chemical Society, the opinion is expressed that improved visibility is all that is needed to set in motion expansion plans on the part of the chemical industry, involving the expenditure of many millions. The article says:

"Under present business conditions, the industry is holding capital expenditure to about half that of 1937. Some are prepared to proceed with the building of new plants, for which careful preparations have been made, and final decisions have been delayed only by current conditions which all hope are now improving and on the upswing. * * * One corporation has before it a program for plant renewal and new construction approximating $8,000,000. * * * Another is spending at the rate of $28,000,000 this year. Several have at least a million-dollar program approved and waiting, and some plants are actually busy installing processes, some of which are new and some of which involved extensive changes in existing processes.

"It is clear * * * that the chemical industry has the power, the guidance, the course charted, and is at attention, prepared to proceed with the first lifting of the fog. * * * New difficulties may follow the monopoly investigation now under way by the National Economic Committee, which has placed major emphasis on patents. Any drastic change in our patent statutes would certainly profoundly affect research."

Telegram

Editor, MANUFACTURERS RECORD:

The following is a summary of my annual crop figures for the year ending July 31, 1938. World consumption of American cotton approximates 12,162,000 bales including 985,000 bales of cotton linters. Consumption of American cotton in the South amounts to 5,220,836 bales including 392,532 bales of cotton linters. The world carryover of American cotton is 13,803,000 bales including 848,000 bales of cotton linters. The carryover in the United States of lint cotton only, is 11,025,000 bales, which includes 6,964,275 bales of lint held under government loans, but does not include 167,495 bales on which the loans have been repaid. Exports of commercial crop cotton to foreign countries, including Canada, were 5,953,872 bales bringing the total number of bales marketed in the year to 13,562,070.

HENRY PLAUCHE, *Secretary*
New Orleans Cotton Exchange

INTERNAL COMBUSTION ENGINES—
Bulletin S-500-B13—illustrating and describing Worthington Diesel and Gas Engines, and showing various installations of these units.
Worthington Pump and Machinery Corporation, Harrison, N. J.

IMPULSE TURBINES—
Bulletin No. 138—"Power Impulse Turbines by Smith," prepared by W. M. Hart Company, York, Pa., featuring Smith power impulse turbines and valves, as manufactured by—
S. Morgan Smith Company, York, Pa.

Southern Contracts During July Total $76,587,000

FOR the second consecutive month, according to totals compiled from reports published in the daily issues of *Construction*, awards made in the sixteen states of the South have shown an increase. The continued rise in July carried the month's total of $76,587,000 to within one and one-half percent of the level for the same month of last year. Contracts so far this year total $420,343,000.

The current July's total is made up of thirty-five per cent highway, street and bridge work; twenty-nine per cent industrial and engineering projects; twenty per cent general building and sixteen per cent public building. All of these various types of work were ahead of the valuations for the preceding month.

Southern highway builders were busier than they have been since June of 1937. The $26,932,000 total road contracts last month was the result of activity on the part of all State Highway Departments in the South. Various Federal agencies opened bids. The Tennessee Valley Authority opened bids for road relocations in the Guntersville and Chickamauga dam areas. The Bureau of Public Roads either opened bids or prepared to open proposals for projects in Virginia, Georgia and Mississippi, the project in the latter state being on the Natchez Trace. Municipalities and counties throughout the South and too numerous to name prepared to go ahead with road, street and bridge improvements.

Industrial awards, increased by the disclosure that the contractor had been named to construct the $7,500,000 newsprint mill at Lufkin, Tex. Merritt, Chapman & Scott, Inc., of New York, is to do the work, which was planned by George F. Hardy, New York engineer, who has been associated prominently with the paper mill expansion which has swept through the South in the last several years.

The month was marked by another step forward in the Southern building material manufacturing industry. The National Gypsum Co., Buffalo, N. Y., announced that the contract for its new $1,000,000 wallboard plant to be built at Savannah, Ga., had been awarded to the George A. Fuller Co., of New York. Preliminary dredging and pier construction in connection with the project are now practically ready to start. The plant is the second large one proposed within two months for the Georgia seaport. In June it was announced by the American Cyanamid & Chemical Corp. that a large heavy chemical manufacturing unit would be established there.

The chemical company also will construct a plant at Mobile, Ala., where the gypsum company has just completed a fibreboard factory. Johns-Manville Corp., building material manufacturer, is now carrying out construction on a $1,000,000 plant at Jarratt, Va., to produce insulating board from wood pulp. The Consolidated Engineering Co., of Baltimore, holds this building contract.

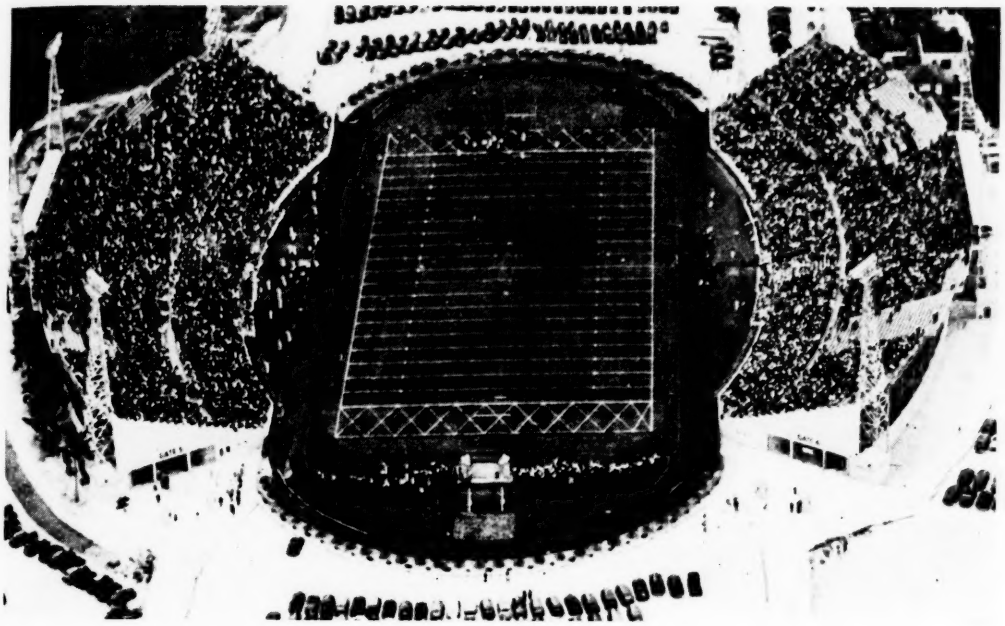
Most prominent of the proposed in-

(*Continued on page* 34)

Statistics on the South's Construction

	Contracts Awarded July, 1938	Contracts Awarded July, 1937	Contracts to be Awarded July, 1938	Contracts to be Awarded July, 1937	First Seven Months, 1938 Contracts Awarded
GENERAL BUILDING					
Apartments and Hotels	$4,828,000	$3,242,000	$4,693,000	$2,655,000	$25,563,000
Association and Fraternal	255,000	336,000	727,000	1,359,000	1,494,000
Bank and Office	407,000	2,925,000	3,680,000	1,018,000	7,651,000
Churches	1,431,000	444,000	1,607,000	1,491,000	5,263,000
Dwellings	6,851,000	7,095,000	49,059,000	4,480,000	46,055,000
Stores	1,844,000	3,332,000	1,763,000	3,575,000	21,751,000
	$15,616,000	$17,374,000	$61,529,000	$14,578,000	$107,777,000
PUBLIC BUILDINGS					
City, County, Government and State	$8,662,000	$11,914,000	$126,105,000	$22,530,000	$50,420,000
Schools	3,147,000	3,952,000	63,136,000	12,744,000	29,972,000
	$11,809,000	$15,866,000	$189,241,000	$35,274,000	$80,392,000
ROADS, STREETS AND BRIDGES	$26,932,000	$11,561,000	$55,162,000	$39,078,000	$116,914,000
INDUSTRIAL AND ENGINEERING					
Drainage	$2,411,000	$1,273,000	$38,643,000	$4,123,000	$13,711,000
Filling Stations and Garages	656,000	1,079,000	780,000	1,835,000	3,608,000
Industrial Plants	*18,621,000	27,030,000	†72,316,000	94,051,000	84,847,000
Sewers and Waterworks	542,000	3,576,000	18,331,000	7,903,000	13,094,000
	$22,230,000	$32,958,000	$130,070,000	$107,912,000	$115,260,000
Total	$76,587,000	$77,759,000	$436,002,000	$196,842,000	$420,343,000

* Includes $7,305,000 for public dams, power houses and rural electric lines.
† Includes $54,200,000 for proposed public work with same features.



ALL ON DECK

Orange Bowl—A Virginia Bridge Stadium

The Orange Bowl Stadium was built by the City of Miami, Florida, for its many Athletic events throughout the year and for the Annual Orange Bowl Game on New Year's Day.

Full investigation indicated the economy and efficiency of the Virginia Bridge Steel Stadium with the Virginia Bridge Steel Deck. The results pleased everybody. The Orange Bowl Stadium seats 25,000 and additional seating can readily be added as needed.

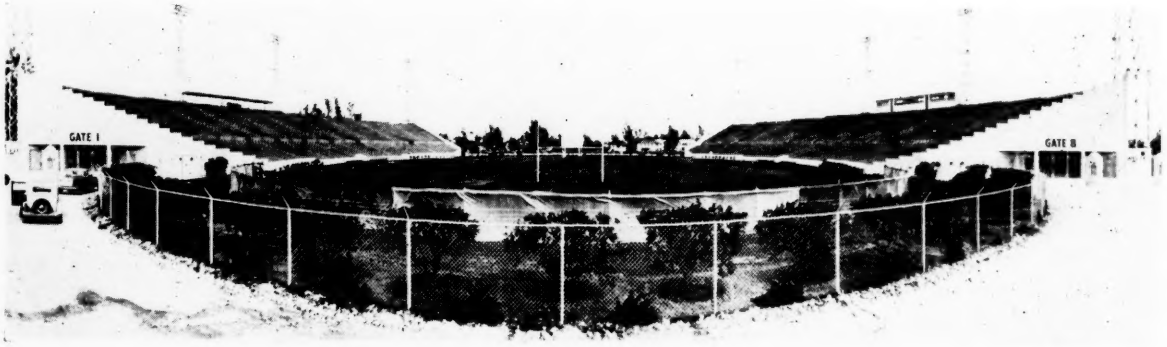
Virginia Bridge

STEEL STRUCTURES

VIRGINIA BRIDGE COMPANY

Roanoke Birmingham Memphis

Atlanta New York Dallas



Southern Contracts During July Total $76,587,000

(*Continued from page* 32)

dustrial expansion was the $5,000,000 enlargement of the Weirton Steel Co., West Virginia subsidiary of the National Steel Corp. Upon completion of the improvements, the Weirton plant will have facilities to widen its range of rail and heavy products.

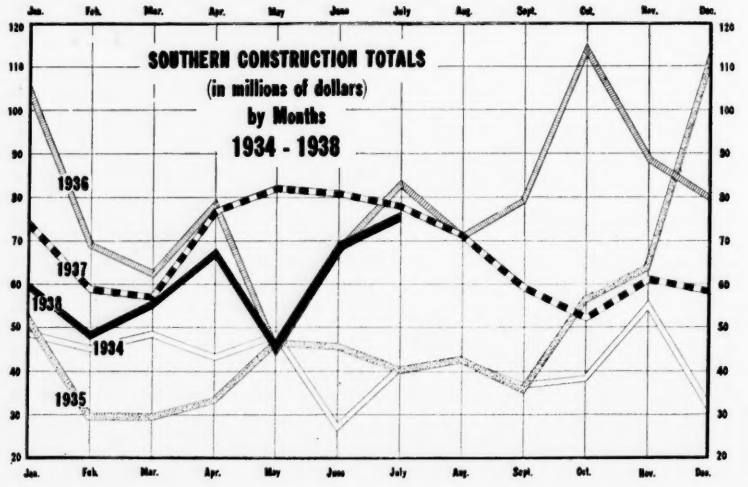
Bids were opened during July for another in the series of dams proposed and under construction in the South for flood control and hydroelectric purposes. This latest project was the Wappapello dam, which is to ultimately cost $21,700,000 and is to be built near Wappapello, Mo., where the St. Francis River flows from the Ozark uplands. Hallett Construction Co., of Crosby, Minn., was the low bidder at $1,833,469 for the first section of the work, including a rolled fill earth dam, diversion channel and dike, concrete control works, gate house and spillway.

Preparations are now being made for starting other dam construction projects, which are exclusive of the huge similar program now partly completed in the middle South by the Tennessee Valley Authority. Engineering contracts and the appointment of engineers were announced by the Public Works Administration for the $37,500,000 Santee-Cooper power and navigation project to be built in South Carolina. The Harza Engineering Co., of Chicago, will do the engineering work under contract. Kenneth Markwell, P. W. A. engineer in the Tennessee area, is to be transferred to South Carolina as project engineer. Francis R. Sweeny had previously been appointed chief engineer of the South Carolina Public Service Authority, which is constructing the project.

Oklahoma is now the scene of construction of one immense dam project, with bids opened for another and proposals scheduled for opening on a third. The $20,000,000 Grand River project at Pensacola, in the eastern section of the State is under construction. Massman Construction Co., of Kansas City, Mo., is the main contractor. Plans for a second dam on the river, to be located at Markman's Ferry, are under consideration. Bids have been opened on the Great Salt Plains dam, the first of major reservoir projects on the Arkansas River.

Bids will be opened on August 18 for a second flood control project, also in northwest Oklahoma. The project is known as the Wolf Creek project and is located on the North Canadian River 14 miles from Woodward. Its first section involves essentially the same type off work as the Salt Plains dam. Both of the projects are under supervision of the Little Rock office of the United States Army Engineers.

Army engineers are initiating work



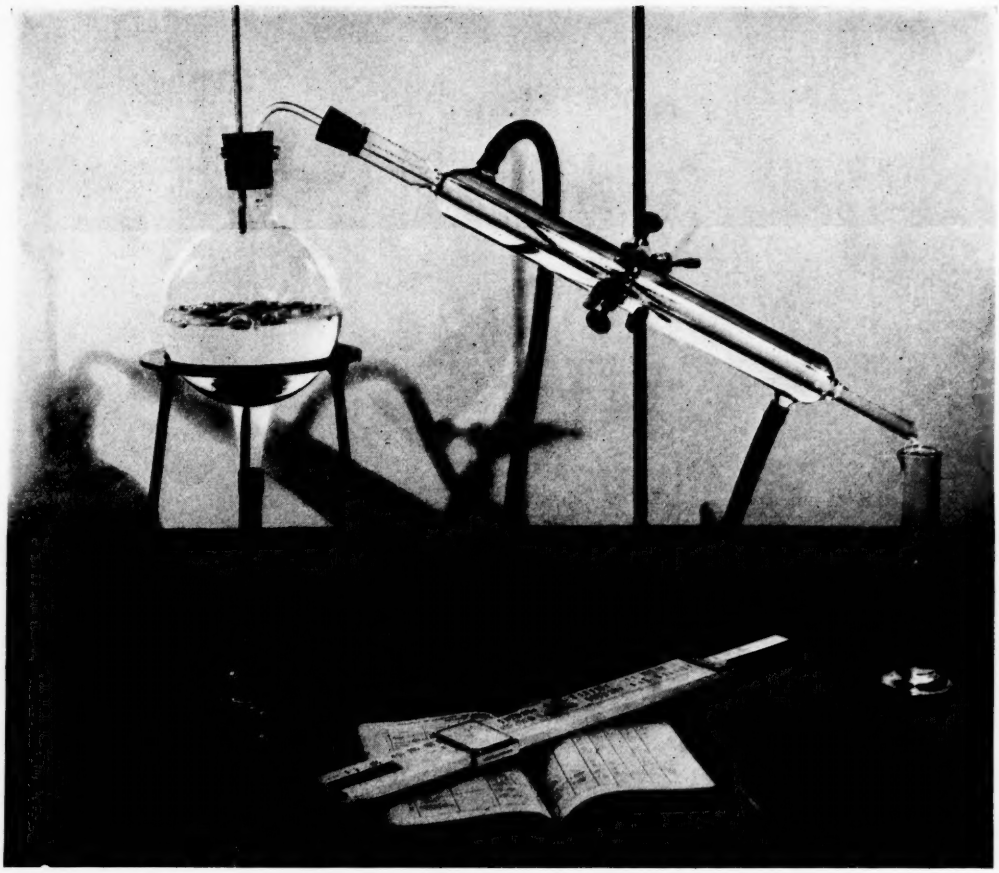
with the money allotted to them by the last Congress for flood control, river and harbor improvement, dam construction, etc. As the South has 3000 miles of the country's coast line and a total of one half of the water area of the U. S. much of the river and harbor money goes for work in those states from Maryland to Texas. The Mississippi and other rivers are included in the territory under supervision of the Southern engineer offices. The Second New Orleans District, for instance, has an allotment of $13,725,000 for the present fiscal year. One of the large projects in that area is the proposed Morganza floodway. The upper and lower guide levees of this project will involve 9,900,000 cubic yards of earth work. The Memphis office of the engineers has a $2,125,000 allotment for the first section of a proposed $14,000,000 flood protection project.

Shipbuilding plants are also expanding. Todd-Galveston Dry Docks, at Galveston, Texas, is dredging a new slip along water frontage recently leased from the city. The Bethlehem Shipbuilding Corp. is going ahead with its Key Highway project at Baltimore, and the Tampa Shipbuilding & Engineering Co. at Tampa, Fla., is improving facilities and laying the necessary ways and erecting mold loft space under its contract to build four freighters for the Martime Commission.

Few private electric projects are announced in this time of municipal, county and State competition in that industry. However, during July it was made public that the Arkansas Power & Light Co., of Pine Bluff, had petitioned the Arkansas Utilities Commission for permission to construct rural electric lines. This company is making ready to construct one of the few privately owned hydroelectric plants in the South. To cost in the neighborhood of $6,000,000, the project will be located at the Blakely Mountain site northwest of Hot Springs, Ark. Part of its cost, however, will be defrayed by the Federal Government for flood control features incorporated in its design. The Appalachian Electric Power Co., an affiliate of the American Gas & Electric Co., at the present time has work well advanced on a $12,000,000 hydro plant at Radford, Va.

Armour & Co. is understood to be ready for bids for its $1,000,000 Houston, Texas plant. The Folger Coffee Co., in the same city, is starting work on a $150,000 coffee roasting plant. Bids are to be received October 1 for the $100,000 pharmaceutical manufacturing and research building of the Cole Chemical Co., at St. Louis, Mo. The Bull Steamship line received a low bid of $252,072 from the Fiske-Carter Construction Co., of Greenville, S. C., for warehouse, docks and terminal facilities at Jacksonville. Tampa, Fla. is the location of a $100,000 meat packing plant for V. P. Lykes Brothers, Inc. G. A. Miller, Inc., local construction firm has the general contract. Henschein, Everds & Crombie, Chicago, are the architects.

Gulfport, Miss., has plans almost ready for municipal warehouse facilities to cost in the neighborhood of $715,000. Shourds & Bean are the architects. Natchez, another Mississippi town, where a $1,000,000 tire plant is being constructed, proposes water works improvements to cost $300,000. Wiedeman & Singleton, of Atlanta, are the engineers. This project is one of the hundreds that will be undertaken under the Public Works Administration program. The town of Breaux Bridge, La., where a $700,000 sugar mill is being built, is planning to go ahead with a natural gas transmission and distribution system. The Giles County (Va.) Chamber of Commerce extended the time in which the Celanese Corporation of America may start construction on a big plant on locally financed site at Pearisburg, Va.



FOR CHEMICAL INDUSTRIES

. . . the Texas Gulf Coast

The Texas coast country's superb resources of fuel, raw materials, transportation facilities and markets assure the region a rich industrial future—particularly among the chemical industries.

Soon or late your company must consider a Texas location. So, whether it contemplates immediate expansion of its plant facilities or not, it will pay you to find out, now and in detail, what the coast country offers.

You will therefore be interested in the Survey Service of our Research Department. This service was inaugurated to assist expanding and decentralizing industries in their advance investigations of the Texas coast country as a location for new plants.

Briefly, it involves the preparation of a detailed, comprehensive, engineered survey of the Texas coast country for any interested industry. Each survey is individualized to the specific requirements of the industry which requests it; each is prepared without cost or obligation.

Let us prepare such a survey for you. Your request will be kept in strictest confidence.

Address Research Department, Houston Pipe Line Company, Petroleum Building, Houston, Texas.

★

A partial list of advantages attracting industry to the Texas coast country: petroleum and its by-products, natural gas, cotton, cotton linters, cotton seed, sheep, goats, wool, mohair, carbon black, sulphur, lime, salt, metallic and non-metallic ores, rail and water transportation facilities, a mild climate, unexcelled recreational facilities.

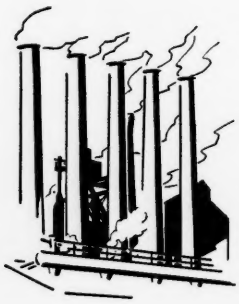
HOUSTON PIPE LINE CO.

Subsidiary of Houston Oil Company of Texas

GEO. A. HILL, JR., President

Wholesalers of Natural GAS

Iron, Steel and Metal Market



STEEL operations for the last week of July were scheduled at 37 per cent of capacity. This was a slight increase over the week preceding, and the highest rate of operation since November. To what extent reduction in prices has helped to bring about the improvement has not been shown, but the fact remains that operators generally feel better over the outlook than they did.

Most companies show a loss for the second quarter, with National Steel being an exception. That corporation has been in the black throughout the depression. Accompanying a statement of the earnings of the company, announcement was made that $5,000,000 would be spent on plants of the Weirton Steel Co. at Weirton, W. Va., for the purpose of providing facilities for a larger diversification of products such as heavy steel rails, a greater variety of structural shapes, besides steel piling and other products. Work on the expansion will be begun at once and finished July 1, 1939.

Talk has been active on the wage question. Labor costs appear to be out of line with current prices. What the outcome will be still remains in the future.

It would seem to be the part of wisdom for labor, which has been well paid throughout the depression, to recognize the desirability of cooperation in putting steel, as a fundamental industry in the national economy, back on the road of successful operation.

Southern Operations

Full-time employment was restored by the Woodward Iron Company of Birmingham, when blast furnace No. 2 resumed operations. As a result, approximately 550 men were re-employed at the Dolomite coal mine in anticipation of the reduced price on pig iron bringing about increased output.

Steel operations in the Birmingham district rose to 53 per cent. This compares with 37.2 per cent at Buffalo and 37.6 per cent at Chicago.

Of particular interest to the South is the proposal of the C.I.O. to raise the pay of steel workers in the Southern area, on products intended for government. According to the *Journal of Commerce*, Mr. Hugh Morrow, President of Sloss, Sheffield Steel and Iron Co., told the Government Public Contracts Board the establishment of a 45 cent rate would result automatically in step-ups in other wage classifications and so burden the industry with labor costs that competition with Northern concerns would be impossible. He testified that with one exception the steel mills of the South pay their common laborers 40 cents an hour.

Late news discloses that the Board desires to obtain additional wage data from the small companies in the steel industry before fixing minimum wages under the Walsh-Healy Act. Testimony before the Board showed that the minimum wages proposed by the C.I.O. would work hardship, especially in the South and among smaller producers. It is now understood that the small steel companies will be asked to present data to the Board covering the number of workers employed, the base rate of pay, and those receiving the base rate or less than the base rate. The final decision rests with the Secretary of Labor.

Signs of Improvement

In the latter part of July Tennessee Coal, Iron & Railroad Co. announced an additional open hearth furnace would be placed in operation at Fairfield, making five furnaces in operation at that point and two at Ensley.

The Republic Steel Corporation also will have five open hearth furnaces operating in the South.

The Seaboard Air Line Railway ordered from the Tennessee Coal, Iron & Railroad Co., 4,500 tons of steel rail and accessories, representing an expenditure of about $200,000.

Large orders are pending and are expected to assume definite shape soon. The Southern Railway's order for 75,000 tons of steel to be used in the construction of 5,550 freight cars is one item in the list.

The American Bridge Co. was low bidder on a bridge at Redding, Calif., to take 6,000 tons. Bethlehem Steel Corporation received an order for 15,000 tons of reinforcing steel bars for the Metropolitan Life Insurance Building, and 2,700 tons for the General Motors Building at the New York World Fair. There were other orders for smaller amounts. The Delaware Aqueduct project will take 16,750 tons of structural shapes.

From the above it would appear that such confusion as may have arisen from the establishment of new basing points has greatly cleared. The improvement that has taken place apparently points the way to better things. While buyers either from expectation of further reductions, or from uncertainty as to the general outlook, are in the main buying only for immediate necessities, the opinion is rather generally held that as fall approaches increased operations may be expected.

E. I. Evans, general superintendent of Republic Steel Corporation's plant at Gadsden, announced in Birmingham that nut and bolt manufacture would be added to the company's list of products, equipment for which has already been received and probably will be installed within the next sixty days. Mr. Evans is quoted as saying the corporation has taken advantage of the opportunity Gadsden offers as an excellent center for manufacture and distribution for these widely-used products.

Structural Steel Orders

New orders booked by the structural steel fabricating industry were larger in June than they have been for any month this year, and it is stated by the American Institute of Steel Construction that none of this new business had come, so far, from the work relief program of the government. Contracts in June totaled 41.7 per cent of normal, as compared with a monthly average of the year to date of 34.6 per cent. The estimated total tonnage of contracts closed for the entire industry for the first six months of 1938 was 488,000 tons.

In other metal markets the export price of copper rose to 10.28 cents. Sales of domestic copper advanced steadily with the prevailing price of 10 cents.

Scrap smelters raised their quotations to 8½ cents for No. 1 metal and the prices of wire and copper products also advanced ⅛ of a cent. Foreign prices have been advancing since the middle of June. Fabricators reported increasing orders at 9½ cents, but a slowing down as the price increased.

THE STEEL PIPE WITH THE PLUS FACTORS

"Good pipe?

I'll say . . . I know by the feel"

There's a reason for that easy-threading quality in Bethlehem Pipe. It is manufactured—from ore smelting to shipping floor—by the integrated teamwork of one local plant organization.

Careful selecting of raw materials backed by up-to-the-minute production practices and rigid inspection insure that every length of Bethlehem Pipe is soft and uniform. No hard or burned spots, no slag inclusions to cause difficult cutting or threading.

Some other Bethlehem Products of particular interest to Southern Industry:

Wire Rope—*made with a "know-how" that means maximum service.*

Steel Sheets—*Black and galvanized, flat and formed.*

Steel Plates and Flanged Products

Tool Steels—*A complete range, covering every requirement.*

Open-Web Steel Joists—*for fire-resistive, shrinkage-free floors.*

Reinforcing Steel and Road Steel

Structural Shapes—*Wide-Flanged Sections for heavy construction; Light Sections for economical use of steel where loads are light.*

Fabricated Steel Structures of all types

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

Lumber News of the Month

Charles Holmes Herty

The South and the country have suffered a great loss in the death of Dr. Charles H. Herty, who passed away at Savannah, Ga., July 27, in the 71st year of his age.

Born at Milledgeville in 1867, Dr. Herty was graduated from the University of Georgia in 1886, and in 1890 received his Ph. D. degree at Johns Hopkins. After two years at the universities of Berlin and Zurich, he taught for two years at the University of Georgia and later at the University of North Carolina. Although as a teacher his career was brief, he left an impress on the lives of men from all sections which has been indelible.

He was a past president of the American Chemical Society, and for a number of years editor of the *Journal of Industrial and Engineering Chemistry.*

Honored by many institutions of learning with degrees of science and law, he remained always a simple, courtly gentleman of the South, whose heart and soul were devoted to upbuilding work and the development of new opportunities for the betterment of mankind.

In making possible the manufacture of newsprint from Southern pine, his career was crowned by an achievement that attracted the attention of the world. Through his efforts an industry that will utilize one of the South's major resources has had its beginning, and following that will come the making of book paper and fine grades of writing paper by processes Dr. Herty already had perfected.

His latest experiments were with hardwood trees, such as black gum, which grow freely in the swamps of the South, and he envisioned a still wider reach of the industrial possibilities inherent in the abundant timber supplies of the Southern states.

Simple and unassuming, Charles H. Herty will be remembered for his great scientific attainments, and as well for the simplicity and personal charm which marked his character.

United States Lumber and Log Exports and Imports First Five Months 1938

Total exports of hardwood and softwood lumber and logs for the first five months of 1938 totaled 449,904 M board feet as compared with 805,297 M board feet for the corresponding period of 1937, a decline of 44 per cent, according to figures just released by the Forest Products Division of the Bureau of Foreign and Domestic Commerce.

In the following paragraphs comparisons are of the first five months of 1938 as compared with the first five months of 1937, respectively.

Of the total 1938 amount, sawed material accounted for 393,100 M feet as compared with 742,142 M feet, a loss of 47 per cent. Exports of logs and hewn timber totaled 56,804 M feet as compared with 63,155 M feet; a loss of 10 per cent.

Sawn softwoods totaled 293,442 M feet as compared with 427,399 M feet. In this sawn softwood group, Douglas Fir was the most important species exported totaling, 141,220 M feet as compared with 205,361 M feet. Southern pine was next in importance, totaling 125,622 M feet as compared with 174,724 M feet. Other woods exported in this group were: White, Ponderosa and Sugar Pine, 10,822 M feet as compared with 19,114 M feet; Redwood, 6,074 M feet as compared with 7,978 M feet; Spruce, 3,802 M feet as compared with 9,536 M feet; Cedar, 2,129 M feet as compared with 3,147 M feet; Cypress, 1,868 M feet as compared with 2,068 M feet; Hemlock, 308 M feet as compared with 3,022 M feet.

Sawn hardwoods (including flooring) totaled 99,658 M feet as compared with 314,743 M feet. In this group Hickory was the only species to show a greater export volume. Ash totaled 11,524 M feet as compared with 19,280 M feet, and Oak totaled 47,295 M feet as compared with 88,752 M feet. All other species in this group although totaling smaller volumes showed similar relative percentage decreases.

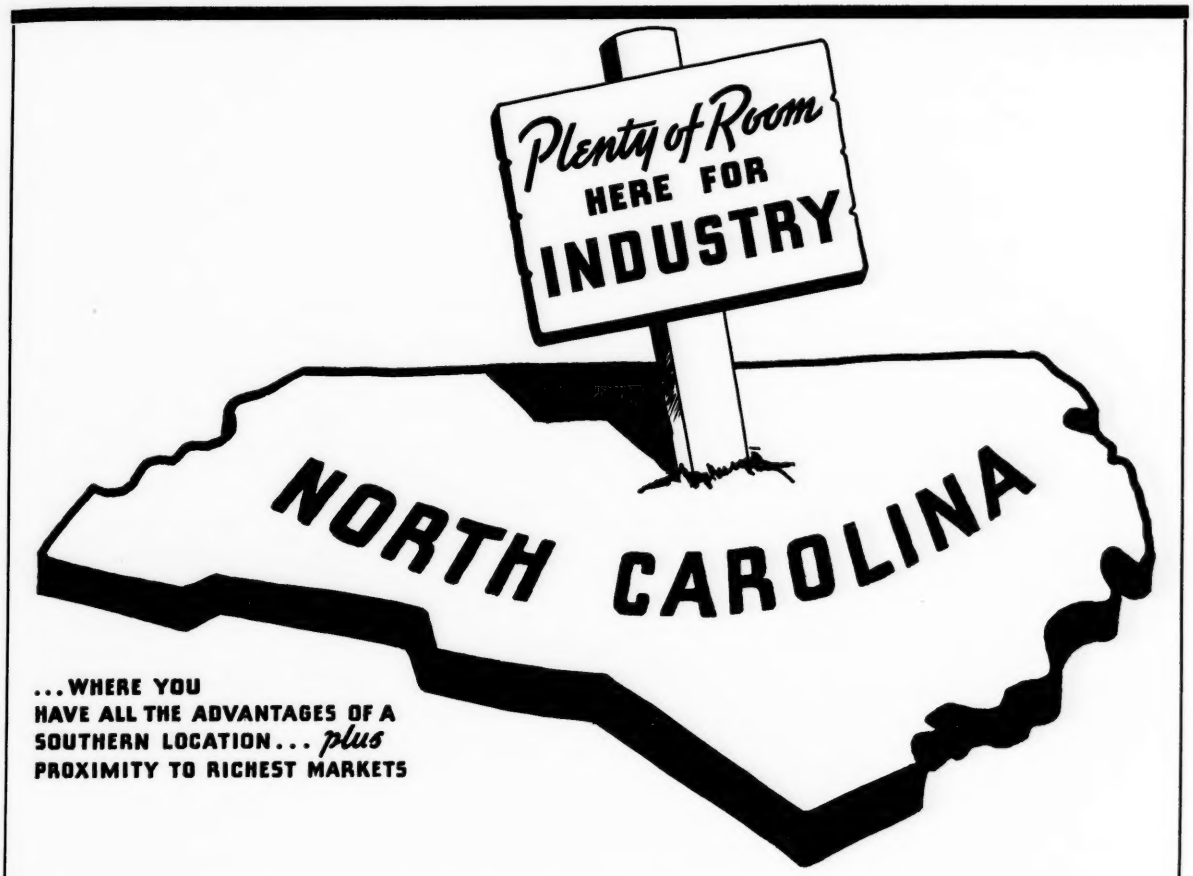
Softwood log exports totaled 44,834 M feet as compared with 52,197 M feet. Hardwood log exports totaled 11,970 M feet as compared with 10,958 M feet. In this log export group during 1938, Douglas fir accounted for 35,279 M feet, cottonwood and aspen 4,058 M feet, ash and hickory, 2,851 M feet, Port Orford cedar 2,327 M feet, Hemlock, 2,196 M feet. Log exports of other segregated species were comparatively small.

Total imports of hardwood and softwood logs and lumber (including clapboards and cabinet woods) totaled 243,136 M feet as compared with 308,533 M feet. Of this 1938 amount, 54,386 M feet were logs (hardwoods and softwoods) 163,335 M feet were softwood lumber (including clapboards) and 25,415 M feet were hardwood lumber and sawed cabinet woods, as compared with 43,359 M feet of logs, 223,057 M feet of softwood lumber and 42,117 M feet of hardwood lumber and sawed cabinet woods, respectively.

Southern Pine

One of the sharpest recorded increases in the placement of new business with Southern lumber mills occurred during the first week of July, according to H. C. Berckes, Secretary-Manager of the Southern Pine Association. The average of business accepted was better than any since December 1936, and was only slightly less than March of 1929. Orders for Southern Pine rose above the volume of the previous week and far exceeded that of the similar period of 1937. Shipments increased for both periods and production was above the preceding week.

Mr. Beckles declared that the remarkable pick-up in business is undoubtedly the result of the recently enacted Wage-Hour law. "The smaller units produce more than 50 per cent of the Southern Pine industry's output and the costs of this class of mills will be raised under the Wage-Hour law more than $5.00 per thousand feet, or $100.00 a carload. The retail lumber dealers in consuming centers, anticipating these increased costs, are stocking up completely now before the Act becomes effective." "Thousands of small producers will be unable to operate under the wage-hour standards and the lumber dealers realize that these sources of supply will be shut off. This may be the beginning of a series of artificially produced periods of poor and brisk business, such as we experienced under NRA."



...WHERE YOU HAVE ALL THE ADVANTAGES OF A SOUTHERN LOCATION... *plus* PROXIMITY TO RICHEST MARKETS

THE value of manufactured products in North Carolina has grown with amazing steadiness. From a figure of 216 million dollars in 1909, a total of $1,114,000,000 was recorded in 1935. The growth and development of Industry here, a natural consequence of the State's many advantages, has been achieved without congestion. Factory sites are still plentiful in all parts of the State. The laws and tax structure of North Carolina are favorable to industry, and you'll find on every hand a sympathetic understanding of your problems.

You can build your factory with a smaller investment of capital in this year-round moderate climate . . . fuel and other operating costs are likewise lower. Abundant raw materials are available. Workers are plentiful—99% native-born, willing to work and cooperate with employers. Power is ample and economical. Great consuming markets are close by, (over half the U. S. population is within a 600 mile radius) and the transportation facilities are excellent. Doesn't it stand to reason that you can compete with greater promise of profit from a North Carolina location?

- Native-born labor
- Business-minded legislation
- Strategic location
- Plentiful Raw materials
- Ample economical power
- Excellent transportation facilities
- Moderate climate

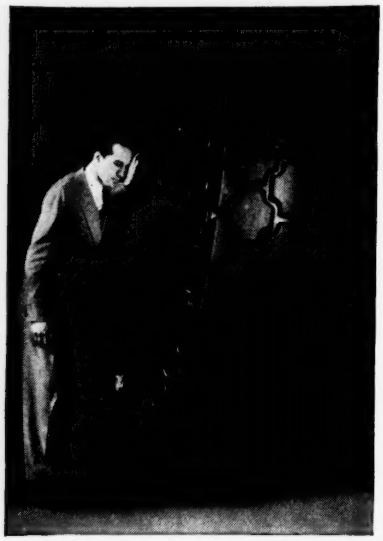
Specific data relating to *your* business will be compiled and furnished at your request. Write Industrial Division, Room 94, Department of Conservation & Development, Raleigh, N. C.

OUTSIDE THE CONGESTED AREAS—YET CLOSE TO THE RICHEST MARKETS

New Ways of Doing Things

Largest Firestone Tire

An accompanying illustration shows Leonard K. Firestone, trade sales manager of the Firestone Tire & Rubber Company of Akron, Ohio, inspecting the "latest giant of the tire industry" as it comes from the mold. One of a set built by Firestone for use on a mammoth new earth moving unit manufactured by R. G. LeTourneau Company of Peoria, Ill., this tire stands 79 inches high, weighs 1,304 pounds and is built to carry a load of 25,-



Largest Firestone Tire Under Inspection

000 pounds. Diameter of the rim on which it is mounted is 32 inches and the rim width 17 inches. It has a tread width of 20 inches. The tube weighs 102 pounds and the protective flap 36 pounds. When inflated to its regular operating air pressure of 45 pounds, it has a volume of 62,-500 cubic inches, while the net weight of the air inside the tube is 11 pounds. In building the tire, 100 miles of Firestone patented Gum-Dipped cord were used.

New Virginia Stone

Known as Virginia Black Serpentine, a new stone is being quarried by the Alberene Stone Corporation at its No. 7 quarry at Schuyler, Va., which is said to contain the mineral serpentine in large quantities and chlorite and tremolite in smaller quantities. As it takes and maintains a high polish, it is used extensively for decorating and has recently been employed in the Orange County Courthouse, Orange, Tex.; Rhodes Center, Atlanta; Halton Jewelry Store, Ft. Worth; Charity Hospital, New Orleans; Citizens-Time Building, Asheville; Federal Reserve Bank Building, Washington, and Varner Building, Houston.

Adds Welding to Curriculum

For the first time, welding was included in the curriculum of Louisiana State University in the school year 1937-38, the course being offered to students of Mechanical Engineering, Industrial shop, and Evening Trade Extension classes. The course has been greatly aided, it is said, by the cooperation of industrial companies, the evening course particularly being well attended by representatives of the Standard Oil Company, Solvay Process Company, Du Pont Company, Union Tank and Car Company, Pierce Foundry and others. Equipment by The Lincoln Electric Company, Cleveland, Ohio, is being used.

Raymond Laboratory Mill

The Raymond Pulverizer Division of Combustion Engineering Company, Inc., Chicago, Ill., announces a small hammer-type pulverizer for test-grinding operations in the production of powdered materials—probably the first mill of laboratory size to produce the same character of material as made in large, commercial pulverizers. It is a motor-driven unit, equipped with hand-operated screw feeder and five different size perforated screens to give a wide range of classification. Material is produced to required fineness by hammer action, a feature which makes the new mill particularly suited for the development of new products such as chemicals, drugs, cosmetic powders, pigments, insecticides and like materials. Ruggedly and compactly built, the machine may be taken apart easily for cleaning or changing screens.

Clark Heavy Duty Tractor

Developing drawbar pull as high as 4,400 pounds, a new heavy duty industrial tractor is announced by Clark Tructractor, Battle Creek, Mich. The machine is powered by a 6-cylinder, 46-horsepower truck type gas engine and has self-starter, generator, battery, electric horn, oil bath air cleaner, renewable cartridge type oil filter, removable front bumper plate, heavy removable cast rear fenders, pneumatic tires, and hydraulic brakes. Special equipment includes solid or zero pressure tires, removable front fenders, head and tail lights, couplers, speedometer, and removable rear bumper plate. Built in three capacities—3300, 4000 and 4400 pounds drawbar pull—the tractor has a 59-inch wheel base, 112-inch turning radius, speed of 11 miles per hour, and will tow 70 to 85 tons on trailers on level roadway. It may be factory equipped with fire pump, broom or snow plow.

Textile Blue Book

In the 73rd annual edition of Davison's Textile Blue Book just published, almost nine thousand textile plants are reported in detail together with valuable and up to date information about the textile trade.

Active broad and narrow looms totaling 508,832 for the entire country are reported with only 8,902 inactive, making a grand total of 517,734 compared with 528,368 for 1937.

Most cotton textile machinery shows declines in the present year in comparison with 1937 and are respectively, 25,909,798 against 26,490,351 for ring spindles, 282,-584 against 314,228 for mule spindles, and 1,992,795 against 2,037,935 for twister spindles. Cards increased from 80,471 in 1937 to 81,319 for the current year.

Woolen and worsted machinery also showed a decline. Set cards were 7,925 against 7,750; spindles, 4,210,657 against 4,320,018; combs, 2,267 against 2,268; and looms, 58,399 against 59,808 for 1937 and 1938 respectively.

Included in the volume are reports of 2,396 cotton mills, 959 woolen and worsted mills, 1,334 rayon and silk mills, 2,145 knitting mills, and 4,556 United States and 1,909 foreign cotton merchants.

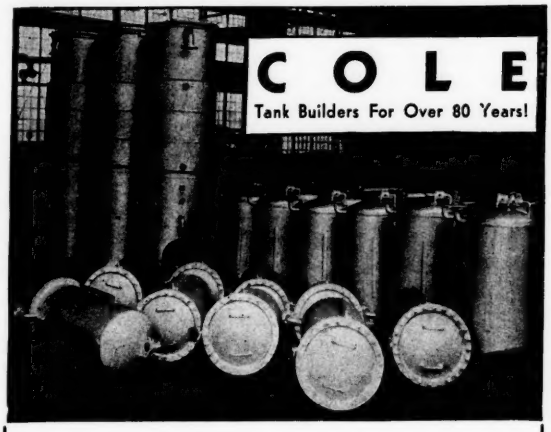
In the 1938 Blue Book of Southern Progress figures cited of active looms were derived from the 72nd edition of Davison's Textile Blue Book but by an oversight credit was not given as usual in the past.

Davison's Textile Blue Book published by Davison Publishing Company, Ridgewood, N. J., $5.50 and $7.50.

Road Oil Sales Increase 6 Per Cent in 1937

Increased construction of the lighter types of highway, especially for county and farm-to-market roads, resulted in an increase of 6 per cent in the sales of road oil by petroleum refineries in the United States—from 8,256,694 barrels in 1936 to 8,733,650 barrels in 1937—according to statistics compiled by the Bureau of Mines, Department of the Interior. However, if the sales of road oil are taken in connection with sales of cut-back asphalts, paving flux, and emulsified asphalts, a smaller proportionate increase (3 per cent) was registered in the total sales of liquid and semi-liquid asphalts for highway construction—from 16,427,-254 barrels in 1936 to 16,968,641 barrels in 1937.

Petroleum refineries in the United States reported production of 8,087,231 barrels of road oil in 1937, compared with 7,397,868 barrels in 1936. The refinery output of road oil was augmented in 1937 by 1,089,167 barrels of other petroleum products, chiefly fuel oil, transferred to road oil stocks, compared with 1,096,583 barrels similarly transferred in 1936.



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Starch kettles, digestors, vats, and other vessels of this durable metal. Your designs or ours—"custom made" to order.

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R.D.COLE MANUFACTURING CO.
NEWNAN EST. 1854 GEORGIA

TANKS

Made to your specifications of steel, stainless steel, stainless clad, monel, nickel, nickel clad, copper, aluminum and alloy metals.

PLATE and SHEET FABRICATORS
From 1/16" to 1" in thickness

Our 25 years of experience in fabricating pressure and non-pressure tanks, smoke stacks, smoke breechings, hoppers, bins, chutes, storage heaters, instantaneous heaters, condensers and kindred equipment is at your command.

RICHMOND ENGINEERING COMPANY Inc.
RICHMOND — VIRGINIA

DAVIS CYPRESS TANKS

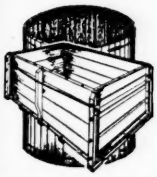
A cypress tank will last indefinitely, and that's the kind we have been making and installing in the South for 50 years. Our experience should mean something to every tank user.

Let us hear from you.

G. M. DAVIS & SON
P. O. Box 5, Palatka, Florida

WOOD TANKS

Wood Stave Pipe



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Tanks any size for all purposes.

Towers any height for tanks.

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The Largest Works of Its Kind in the South

CREOSOTED TIES, PILING, POLES, POSTS, CROSS ARMS, and LUMBER

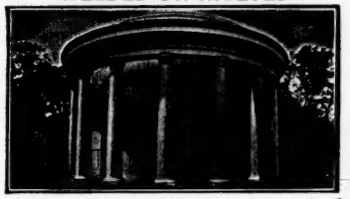
WOLMANIZED LUMBER—
Decay and Termite Proof—Can Be Painted
Docks for Ocean Vessels

American Creosote Works, Inc.
New Orleans, La.

Atlantic Creosoting Co., Inc.
Norfolk, Virginia

Plants at: New Orleans; Winnfield, La.; Louisville, Miss. Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.

SOUTHLAND PRODUCTS
—WELDED OR RIVETED—



Million gal. Tank at White Sulphur Springs, W. Va.

We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

CHATTANOOGA BOILER & TANK CO.
CHATTANOOGA, TENN.

"If I were an ADVERTISING MANAGER"•

That's just one of the talks to be delivered anonymously by a masked speaker that will set every man thinking at the Annual Conference of National Industrial Advertisers Association in Cleveland, September 21-23. A second masked speaker will tell what he would do if he were a publication representative.

We're not going to tell you much here—just highlight the program enough to make your mouth water and your brain tingle.

T. M. Girdler, Chairman, Republic Steel Corporation, is scheduled for the opening address and when "T. M." talks he says something.

J. H. McGraw, Jr. will talk on "What I Would Do *Now* If I Were An Industrial Advertising Manager."

The new Publisher's Statement will receive full discussion.

Clinic sessions, so popular last year, will again cover a wide range of interesting subjects. Two half-day sessions instead of one.

A general conference session will cover such subjects as "Preparing the Plan", "How to Gather Usable Material", "Copy Technique", "How to Sell Management", "Co-ordinating Sales and Advertising" and "How and Why to Use an Industrial Agency."

Another session will deal with "Problems of the Small Advertiser", "Production Problems", "Public Relations"—and there are many others.

If I were an Advertising Manager, I certainly would start now to make plans to attend the 16th N. I. A. A. Conference even if I had to hitch-hike to Cleveland. And I would send in my advance registration now to—Ed. Bossart, Bailey Meter Company, Ivanhoe Road, Cleveland, Ohio.

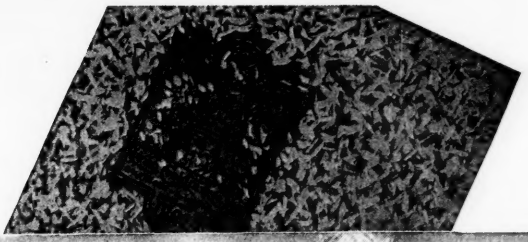
IF I EMPLOYED AN ADVERTISING MANAGER—I would make certain that he attended this Conference, because changing times and markets demand a changed viewpoint—a new viewpoint that can be obtained only by hearing discussions by men whose experience is up-to-the-minute—right up to September 21st.

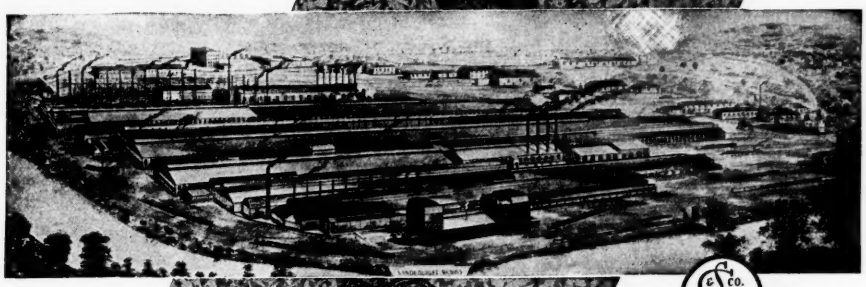
NATIONAL INDUSTRIAL ADVERTISERS ASSOCIATION

100 EAST OHIO STREET • CHICAGO, ILLINOIS

THE MILL

behind the product

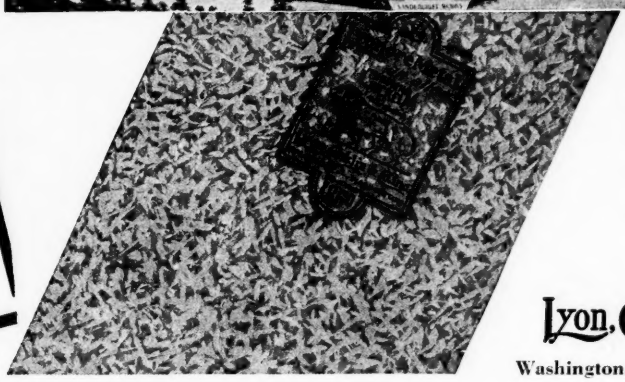




Stamped in red, three times diagonally lengthwise on each sheet, to safeguard your investment.

HERE'S WHAT LYONORE METAL IS

A commercial sheet metal made according to an exclusive formula which scientifically combines iron with chromium, nickel and copper in such proportions that the alloy lasts years longer than ordinary steel, yet costs but a trifle more per pound.



Lyonore Metal
CHROMIUM – NICKEL – COPPER
IRON ALLOY
WARRANTED
1860

Lyon, Conklin & Co. Inc.

Washington, D. C. Baltimore, Md.

METAL BUILDINGS

Fire and Weather Proof!

Rigid, permanent construction of weather tight, fire and lightning proof interlocking steel covering over structural steel frame, according to A.I.S.C. Specifications. May be remodeled or dismantled and re-erected with 100% salvage. Standard or designed to your requirements. Maryland Metal Building Co., Baltimore, Md.

Send for free illustrated Catalog

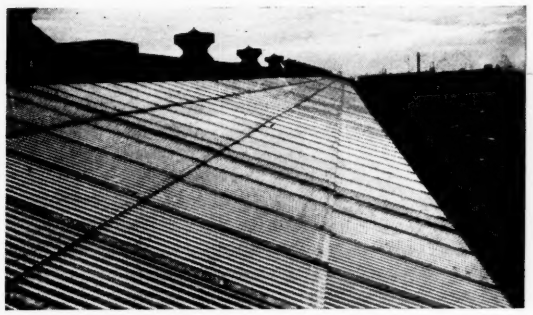
MARYLAND METAL BUILDINGS

CONNORS STANDARD STEEL BUILDINGS

Write for complete new catalog on Connors Prefabricated Steel Buildings. There is a design and size to meet your individual requirement. Erection is rapid. No waste in time and materials. Minimum cost.

CONNORS STEEL CO.

BIRMINGHAM, ALA.



U. S. Army Base, Brooklyn, N. Y.
30,700 sq. ft. CWG Skylights.

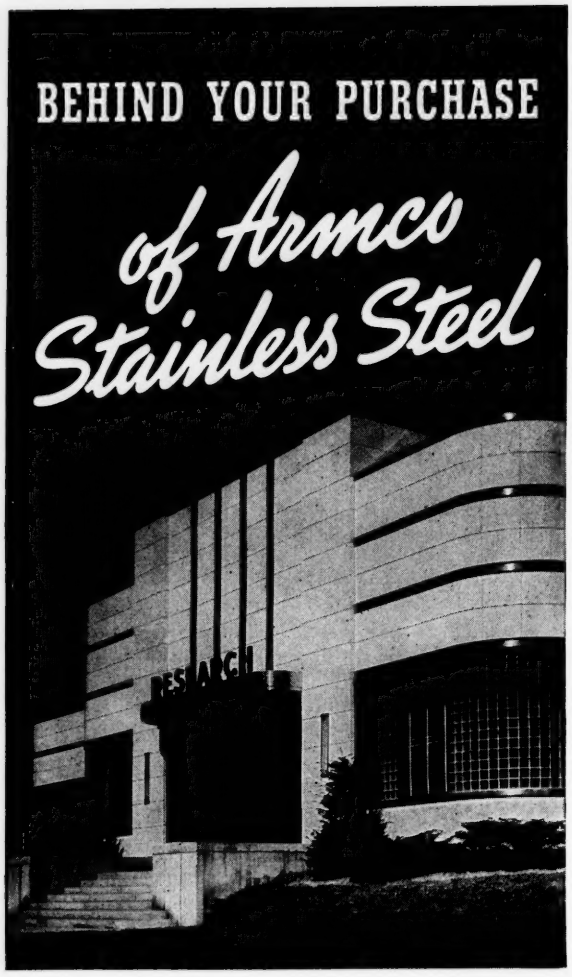
SPECIFY ORIGINAL SOLID CORRUGATED WIRE GLASS

It *diffuses* light with a minimum of shadows. *It is practically* self-cleaning and can be used on a roof of any material and supply daylight in manufacturing and industrial plants—an important factor in all modern production.

Also used with excellent results on sidewalls, marquises, canopies and wherever daylight is needed.

Our Engineering Service Department can aid you on your skylighting problems. Write or wire.

PENNSYLVANIA WIRE GLASS CO.
1612 MARKET STREET
PHILADELPHIA, PENNSYLVANIA



Today's trend indicates that more and more products are being improved with stainless steel. Yet to do this is often more of a problem than the mere purchase of the metal. This is why it will pay you well to come to Armco.

Here you have access to long practical experience supported by one of the largest and best-equipped research laboratories in the industry. Skilled metallurgists are always available to help customers make the most of their investment in Armco Stainless—an important task. You can bring your metal service problems to Armco with confidence that these men will give you a sound solution.

There is a correct grade of Armco Stainless Steel for practically every purpose—for high resistance to corrosion and elevated temperatures; for a greater strength/weight ratio; or for uses where the utmost in beauty, durability and sanitation are desirable. Write for specific information pertaining to your needs. The American Rolling Mill Company, 2651 Curtis Street, Middletown, Ohio.

ARMCO
STAINLESS STEELS

» » » Finance « « «
AND KINDRED SUBJECTS

World Cotton Consumption

The Bureau of Agricultural Economics announces that on the basis of expected consumption of cotton during June and July of the current season, the 1937-38 world consumption of American cotton will total about 11,100,000 bales. This is almost 2,000,000 bales less than that of the previous season, and 15 per cent less than the average for the five years ended 1936-37.

On the basis of these estimates the world carry-over of American cotton on August 1 of approximately 13,500,000 bales appears likely. This compares with 6,200,000 bales a year earlier, and a previous record of nearly 13,300,000 bales carry-over at the beginning of the 1932-33 season.

World consumption of foreign cotton is estimated in the neighborhood of 15,225,000 bales compared with 17,900,000 bales for the previous season.

American Investments Abroad

The Department of Commerce announces that direct investments of American corporations and business men in foreign enterprises and properties at the end of 1936 totaled $6,691,000,000, as compared with $7,528,000,000 at the end of 1929, a net decline of approximately 10 per cent.

The Department announces that its report on the subject is the third of a series inaugurated by the Finance Division of the Bureau of Foreign & Domestic Commerce, and is based on an exhaustive survey.

Bank Clearings

Dun and Bradstreet, Inc., report bank clearings for 22 leading cities for the week ended July 27, as being $4,651,240,000, a decline of 14.6 per cent compared with the same week in 1937.

War Debts

Reports are current that England and France are discussing the payment of their war debts to the United States. While public information is not available as to how far discussion may have gone, it has been hinted in certain quarters that bankers have been sounded on the possibilities of floating new French or English loans of magnitude in the American investment market.

TVA Investigation

The TVA hearing at Knoxville continues prominent in the day's news. Charge and countercharge have been bandied back and forth of unethical conduct, personal spleen and general inefficiency in conducting the giant government enterprise.

It seems clear that operations are admittedly in the red, despite favors of government in furnishing capital and the absence of a tax bill approximating anything like what a private company would have to bear.

Railroad Funded Debt

The Association of American Railroads reports that insurance companies, banks, endowed educational institutions and foundations hold $6,617,000,000 or nearly 56 per cent of the total railroad funded debt.

(*Continued on page* 46)

GLAMORGAN
PIPE & FOUNDRY CO.
LYNCHBURG, VA.

FILTERS
Water Filters for Municipalities, Textile Finishing Establishments, Rayon Manufacturing Plants, Swimming Pools, Raw Water Ice Plants, Laundries, etc.
ROBERTS FILTER MANUFACTURING COMPANY
604 Columbia Avenue — Darby, Pennsylvania

Water Purification Plants
Any Type—Any Purpose—Any Capacity
Dry Chemical Feed Machines
Swimming Pool Filters
E. W. BACHARACH & CO.
Rialto Bldg. — Kansas City, Mo.

Filtration and Pumping Equipment
For Water Works and Swimming Pools
Sales and Installation
BURFORD, HALL AND SMITH
140 Edgewood Avenue, N. E.,
Atlanta, Georgia

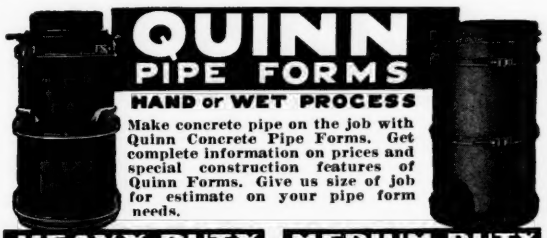
SAND—GRAVEL—BRICK
FILTER GRAVEL
Washed Sand and Gravel for Concrete Roads and Buildings
Filter Gravel, all sizes—Building Bricks
FRIEND & CO., INC. — River St., Petersburg, Va.

CONVERSE BRIDGE & STEEL CO.
Chattanooga, Tennessee
Structural Steel for all Industrial Structures, Buildings and Bridges.
LARGE STOCK FOR IMMEDIATE SHIPMENT

STRUCTURAL STEEL for BUILDINGS and BRIDGES
Capacity 1000 Tons per Month. 3000 Tons in Stock
Carolina Steel and Iron Company
The Largest Steel Fabricators in the Carolinas
Greensboro — North Carolina
S. C. Rep., Edward McCrady, 307 Allen Bldg., Greenville, S. C.

Bristol Steel & Iron Works, Inc.
STRUCTURAL STEEL
For Bridges, Buildings and All Industrial Purposes
Steel Plate and Miscellaneous Iron Work
Complete Stock Shapes, Plates, Sheets and Bars for Immediate Shipment
BRISTOL, VIRGINIA-TENNESSEE
"SAVE WITH STEEL"

BELMONT IRON WORKS
PHILADELPHIA — NEW YORK — EDDYSTONE
Southern Sales Offices, Charlotte, N. C.
Engineers . Contractors . Exporters
STRUCTURAL STEEL
BUILDINGS AND BRIDGES
RIVETED-ARC WELDED
BELMONT INTERLOCKING
CHANNEL FLOOR
Write for Catalogue
Main Office—Philadelphia, Pa.
New York Office—44 Whitehall St.


QUINN PIPE FORMS
HAND or WET PROCESS
Make concrete pipe on the job with Quinn Concrete Pipe Forms. Get complete information on prices and special construction features of Quinn Forms. Give us size of job for estimate on your pipe form needs.
HEAVY DUTY
Built for more years of service—sizes for any diameter pipe from 12 to 84 inches—any length—tongue and groove or bell end.
MEDIUM DUTY
Makes same sizes pipe as "Heavy Duty" but built to meet demand for lower cost equipment to produce uniform quality in smaller amounts.
Also manufacturers of concrete pipe machines for making pipe by machine process.
QUINN WIRE & IRON WORKS 1605 12 St. Boone, Iowa

CRUSHED STONE
Only highest grades of crushed
LIMESTONE AND GRANITE
Meeting all specifications
CAPACITY—8000 tons daily
Blue Ridge, Va. — Pembroke, Va. — Pounding Mill, Va.
Boxley, Greensville County, Va.
W. W. BOXLEY & COMPANY
Boxley Building, ROANOKE, VA.

60 YEARS OF WOOD-TREATING EXPERIENCE
are behind the service of Eppinger and Russell Co. Industrial and commercial lumber of all kinds is made immune to termites and dry rot by pressure-treating with ZMA or Creosote. Consult Eppinger and Russell Co. on your requirements in poles, posts, piling, cross ties, cross arms and other timber. It will add 8 to 20 times the natural life to any woods you have treated by this low-cost, dependable process.
PRESSURE-TREATING PLANTS AT:
Jacksonville, Fla. and Long Island City, N. Y.
WOOD PRESERVERS — SINCE 1878
EPPINGER AND RUSSELL CO.
84 Eighth Ave., New York City

Are You Planning For Future Growth?

Cooperation and Assistance are a Large Part of Our Daily Work

Correspondence invited

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, *President*

BALTIMORE, MARYLAND

Member Federal Reserve System
Member Federal Deposit Insurance Corporation

ENVELOPES

Direct from Manufacturer to Consumer

GLUE-LOCKED ENVELOPES

PLAIN and PRINTED

All Sizes and Styles

OLES ENVELOPE CORP.

2510 Loch Raven Road, Baltimore, Md.
Sales Offices, Washington, D. C., Atlanta, Ga.

MOUNT AIRY GRANITE

For Better Buildings and Memorials

NORTH CAROLINA GRANITE CORP.
Mount Airy, N. C.

? **Better Industrial Location** ?

Suitable industrial sites. No labor problems. Excellent climate and water. 100% cooperation.

MARION BOARD OF TRADE

MARION, NORTH CAROLINA

While cosmopolitan in its general appeal, and modern *up to this moment* in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates $3.00 *per day and up. Every room with bath or shower. Centrally located.*

The Southern Hotel
BALTIMORE

"Finance and Kindred Subjects"

(*Continued from page* 44)

Improvement Signs

In the last month business has become more optimistic. While corporation earnings as a whole have not notably increased, but on the contrary have decreased in some instances, other large companies make a better showing for the second quarter than they did for the first. General Motors Corporation, for example, earned 52 cents per share on common stock for the quarter ended June 30, compared with 14 cents per share for the quarter ended March 31. Accompanying the quarterly report, Chairman Alfred P. Sloan, Jr., stated that a reversal of the downward trend appears to have taken place, due to increasing consumer buying which had been sustained for some time.

Other reports from Detroit indicate that some automobile manufacturers fear an actual car shortage, and are therefore increasing their preparations for 1939 car production, which is expected to be under way by September 1. Sales are considerably ahead of preceding months. K. T. Keller, President of Chrysler Corporation, is quoted as saying "the recent betterment in conditions may lead to stronger operations in the fall when new models will be on the market. The improvement in general business has been reflected in the rapid liquidation of dealers' stocks."

Gold On Hand

The U. S. Treasury Department's gold stock on July 25, totaled $13,000,339,409, the highest figure on record.

RFC Wants Bankers to Lend More

Chairman Jesse Jones of the Reconstruction Finance Corporation is convinced that the banks of the country, speaking generally, are not doing their part in making loans to private industry. Personal visits may be undertaken by representatives of the RFC to various localities in which applications for loans have been made to secure banks' participation where possible, and if the bank receiving the original application is not in favor of it, other banks will be called on in the effort to secure cooperation.

The position of bankers has been, that the abundance of funds in their hands impels them to accept worthy loans, and in fact to go out of their way in soliciting such loans. They have been of the opinion that in recent years few if any loans have been turned down that offered a reasonable credit basis for acceptance.

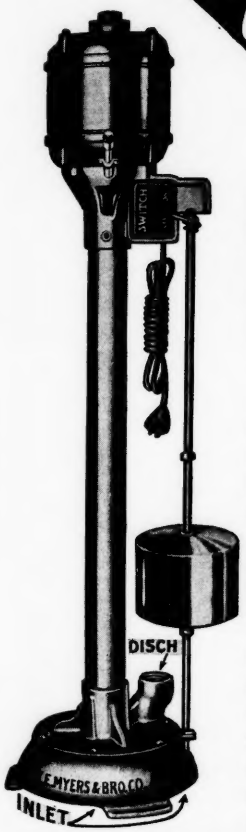
Probably the chief obstacle will prove to be making capital loans, which conservative bankers have regarded as an unwise policy and which the Federal Deposit Insurance Corporation has discouraged.

Increasing Taxes

It is estimated by government economists that a year hence the national debt will be in excess of $43 billion, or double what it was five years ago. For the fiscal year 1939, which begins July 1 next, Congress has authorized the expenditure of $12.5 billions, half of which will be "deficit financed."

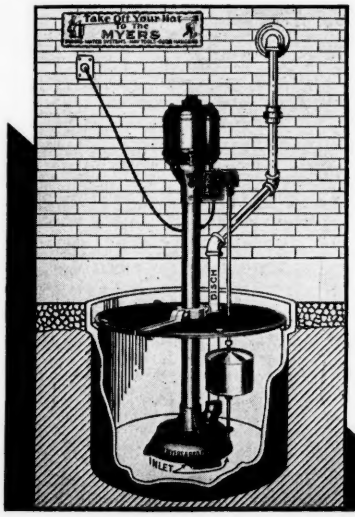
During 1939 the Federal government will spend $1,027,397,250 per month. The bill can only be met by taxes, which must steadily increase.

It Drains when it Rains



MYERS CENTRIFUGAL SUMP PUMPS

At the turn of late winter into spring and from then on until summer arrives, flooded cellars and basements are common in most localities. Collectively, loss and damage throughout the country during this period is enormous, so let's not overlook the opportunity Myers Sump Pumps bring to you for profitable business at times like this. More dependable than ever, attractively priced, easy to install and operate, they automatically provide basement or cellar drainage that reduces excessive moisture or flood hazards to a minimum.



Thousands in service — there's no longer any question about their superior performance values. Already the demand is heavy. Write for catalog and information.

THE F.E.MYERS & BRO. CO.
ASHLAND, OHIO
PUMPS - WATER SYSTEMS - SPRAYERS - HAY TOOLS - DOOR HANGERS

PERFORATED METAL

of every sort

for Screening, Grading, Ventilating or any industrial purpose. Also Grilles of many beautiful designs.

5631 Fillmore St., Chicago, Ill. New York Office: 114 Liberty St.

The Harrington & King Perforating Co.

PERFORATED METALS

Screens . . . . Grilles

Extensive facilities and long experience make Hendrick the logical source for all perforated metals . . . screen plate with any shape opening, round, square, hexagonal, squaround,* slotted, corrugated . . . heating and ventilating grilles of every description. Hendrick can furnish them in any desired commercially-rolled metal. *Reg. U. S. Pat. Off

HENDRICK MANUFACTURING CO.
44 Dundaff Street, Carbondale, Pa.
Manufacturers of Mitco Open Steel Flooring, Mitco Shur-Site Treads and Mitco Armorgrids.

MUNDT

PERFORATED METALS

The few perforations illustrated are indicative of the wide variety of our line—*we can perforate almost any size perforation in any kind of metal or material required.* Send us your specifications.

Sixty-seven years of manufacturing perforated metals for every conceivable purpose assure satisfaction. For years we have specialized in supplying all kinds of screen plates to the pulp and paper industry.

Write for catalogue of Patterns

TIN, STEEL, COPPER, ALUMINUM, BRONZE, BRASS, ZINC, MONEL METAL, STAINLESS STEEL, ANY METAL, ANY PURPOSE

CHARLES MUNDT & SONS
490 Johnston Ave., JERSEY CITY, N. J.

INDUSTRIAL NEWS

Byers Company Announces Appointment

A. M. Byers Company, Pittsburgh, Pa., M. J. Czarniecki, vice president, announces the appointment of A. N. Voripaieff to the Byers New York office at 30 Rockefeller Plaza, to handle eastern marine sales of wrought iron products. He will be associated with D. B. McDonald, New York division manager, and W. J. Wignall, manager of marine and railroad sales. Mr. Voripaieff, a graduate of the Russian Naval Academy, was formerly with the Reading Iron Company and the Babcock and Wilcox Tube Company.

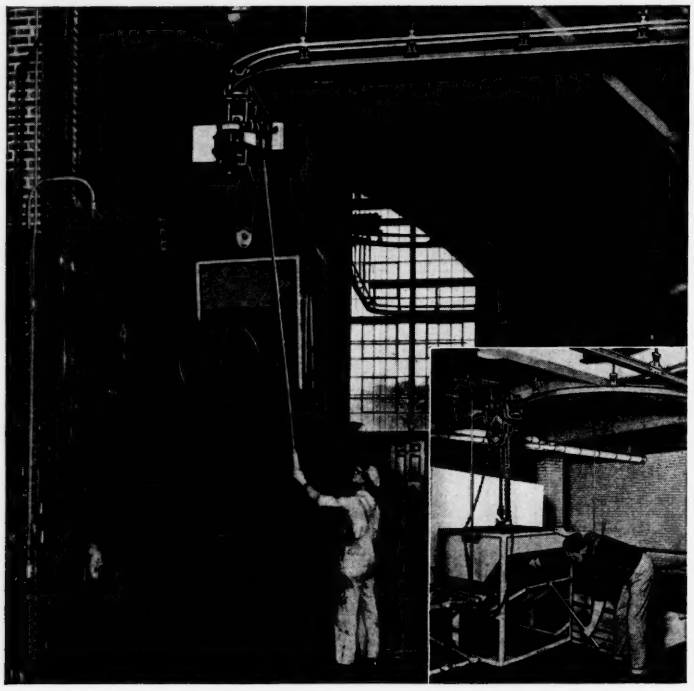
Lewis-Shepard Representative

Wesley D. Low, P. O. Box 1124, Knoxville, Tenn., has been appointed by the Lewis-Shepard Sales Corporation, Watertown, Mass., to handle its line of lift trucks, portable elevators, floor trucks, skid platforms and other material handling equipment.

Union Metal Buys Burton Company

The Burton Manufacturing Company, manufacturers of Seamless Steel Structural Tubing, formerly at Michigan City, Ind., has been purchased by The Union Metal Manufacturing Company of Canton, Ohio, manufacturers of fluted steel products, and the entire stock and equipment of the former are now at Canton in full operation. E. B. Rogers, president of Burton, and formerly superintendent of Mid-West Forging Company, Chicago, has become associated with Union Metal, in charge of tubing operations.

CLEVELAND TRAMRAIL



SUMMERTIME

● The better time to consider boiler room changes. A Cleveland Tramrail engineer can probably give you some worthwhile information as to improving your coal and ash handling methods.

● Motor Operated Equipment
● Hand Operated Equipment

Consult your phone directory under Cleveland Tramrail.

CLEVELAND TRAMRAIL
Division of
THE CLEVELAND CRANE & ENGINEERING CO.
1145 Depot St.
WICKLIFFE, OHIO

Jenkins Heads American-Marsh Pumps

At the April meeting of the directors of American-Marsh Pumps, Inc., Battle Creek, Mich., Elmer M. Jenkins was elected president and general manager, succeeding Richard R. Hicks, who was president of the company for more than 20 years. Mr. Hicks retains his position on the board of directors. Mr. Jenkins, a West Point graduate, has had wide experience in selling, merchandising and administrative affairs. One of the oldest and largest manufacturers of pumping equipment exclusively in the world, American-Marsh Pumps, Inc., until last year, was known as the American Steam Pump Company, which was organized in 1873.

Sulphur in Cotton Belt

According to the Freeport Sulphur Company, of Freeport, Tex., one of the largest producers of sulphur in the world, between 14 and 18 pounds of sulphur will enter into the production of every bale of cotton grown in America this year, either in the form of dusting for insect control, or for fertilizer.

District Engineer of Cement Association

William M. Kinney, General Manager of the Portland Cement Association, Chicago, Ill., announces the appointment of H. D. Humphries as District Engineer of its Atlanta office, with supervision over the work in Georgia, Florida and South Carolina. Mr. Humphries succeeds J. M. Marshall, Jr., who resigned. He is a graduate of Georgia School of Technology and joined the Association in 1933.

Murphy Diesel Appointment

The Murphy Diesel Company, Ltd., Milwaukee, Wis., announces the appointment of W. C. Morgan as District Sales Manager in the Southwest, with headquarters at Tulsa, Okla. The W. K. M. Company of Tulsa is agent in the Mid-Continent field.

A. M. Byers Company Sales Engineer

W. J. Mayer, formerly commercial research engineer for the Reading Iron Company, has been appointed sales engineer by A. M. Byers Company, Pittsburgh, Pa., according to M. J. Czarniecki, vice president. Mr. Mayer will work out of the company's Philadelphia division office, 1210 Girard Trust Building, and his territory will include Baltimore and the South. He will be associated with E. L. McWhorter, division manager at Philadelphia.

Revere Copper Opens Houston Office

In the interest of better service to its customers, Revere Copper and Brass Incorporated, Dallas Division, Chicago, Ill., announces the opening of an office at 915 Second National Bank Building, Houston, Texas, in charge of Hans O. Howard, formerly of the Dallas office.

New Towmotor Representatives

Towmotor Company, Cleveland, Ohio, manufacturers of industrial lift trucks and tractors, announce the appointment of five new Southern representatives as follows: E. Deane Harrington, 17 Guilford Avenue, Baltimore, Md.; L. S. Teague Equipment Company, 1331-1333 West Adams Street, Jacksonville, Fla.; McVoy-Hausman Company, 2019 Sixth Avenue, North, Birmingham, Ala.; James J. Alvarez, 408 Merchants National Bank Building, Mobile, Ala. and C. G. Forshey, 909 M. & M. Building, Houston, Tex.

McAleer Manager Koppers-Rheolaveur Company

W. S. McAleer has been appointed manager of Koppers-Rheolaveur Company, designers and erectors of coal tipples, coal washing plants and special coal cleaning equipment, an affiliate of Koppers Company, Pittsburgh, Pa. Since 1930 Mr. McAleer has been an engineer in the sales department of the company. He was graduated in 1917 from Carnegie Institute of Technology with the degree of mechanical engineer.

(Continued on page 50)

1905 **Strand** 1938

FLEXIBLE SHAFTS AND MACHINES

1/8 TO 3 H.P.

FOR THE PATTERN SHOP, FOUNDRY MACHINE SHOP AND ALL METAL SHOPS

SEND FOR CATALOG

N. A. STRAND & CO.

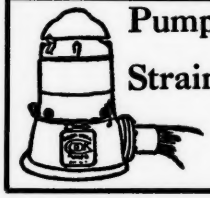
5001 NO. WOLCOTT AVE., CHICAGO

FOR THEIR GREATER SERVICE USE

SHIMER SUCCESS PLANING MACHINE KNIVES AND BITS,

Surfacing Knives and many Knives of smaller proportions for special duty in wood cutting. It will be to your advantage to look into this feature of our service. Our prices, too, are very attractive if you take in consideration their extra wear.

Samuel J. Shimer & Sons, Inc.
MILTON, PA.



Pumps—Deep-Well Plunger and Turbine

Strainers—and other well supplies

WATER PRESSURE SYSTEMS

A. D. COOK, Inc.
Lawrenceburg, Indiana

Ornamental and Industrial

PERFORATED METALS

We carry a large stock for immediate shipment.
Send for Our Catalogue.

Manhattan Perforated Metal Co., Inc., 43-17 37th St., L. I. City, N. Y.

LET US BE YOUR FACTORY

We have plant and equipment for machining parts, building assemblies, complete units and machines.

HEAT TREATING AND GRINDING

Let us furnish quotations on your products.

GENERAL MACHINE WORKS
York, Pa.

TOWMOTORS
HANDLE MOST ANYTHING

Another TOWMOTOR installation in a new pulp and paper mill handling rolls directly from warehouse floor to loading dock.

In Any Manner

Even sacked vegetables are handled quicker, safer and more economically with TOWMOTOR lift trucks.

TOWMOTOR, the straight gas powered, hydraulic lift truck, handles pulp, paper, steel coils, flat sheets, bundles, bulk material and most anything.

Used in conveying to ship side, stacking in warehouse, loading motor trucks, moving goods in process, tiering pallet loads and loading box cars with greater speed, accuracy and economy.

Consult TOWMOTOR users and you will soon be one of them. Lowest cost per year and per ton moved is an actual matter of record. Write today for bulletins and prices.

TOWMOTOR COMPANY

1237 E. 152nd St. **Cleveland, Ohio**

MR. E. DEANE HARRINGTON, 17 Guilford Avenue, Baltimore, Maryland. Phone: Plaza 4262.
L. S. TEAGUE EQUIPMENT CO., 1331-1333 West Adams St. Jacksonville, Florida. Phone: 5-4864.
McVOY-HAUSMAN CO., 2019 Sixth Avenue North, Birmingham, Alabama. Phone: 7-5561.
MR. JAMES J. ALVAREZ, 408 Merchants National Bank Bldg. Mobile, Alabama. Phone: DExter 5882.
C. G. FORSHEY, 909 M & M Building, Houston, Texas. Phone: Capitol 5525.

TRADE LITERATURE

HIGH TENSILE STEELS—
Booklet—illustrated, covering U. S. S. High Tensile Steels, containing technical as well as non-technical information on these products.
Carnegie-Illinois Steel Corporation, 434 Fifth Avenue, Pittsburgh, Pa.

FAIRBANKS CASTERS—
Catalog No. 53—covering truck casters and wheels for practically every purpose.
The Fairbanks Company, 393 Lafayette St., New York, N. Y., with Southern plant at Rome, Ga.

PIPE HANGER CHART—
Folder — featuring the complete Grinnell line of adjustable pipe hangers and supports, as shown on a chart made up in such a way that it is immediately available for constant reference.
Grinnell Company, Inc., Providence, R. I.

WAREHOUSING, WHARF AND HAULING FACILITIES—
Brochure—"Seventy Years of Better Service," describing the varied activities of the Beck & Pollitzer organization—
Booklet—devoted to BEAR wharf and the new Riverside warehouse-factory extension, illustrating and describing Beck & Pollitzer's facilities for wharfinger service, storing and handling merchandise, etc.
Beck & Pollitzer, Universal House, Southwark Bridge, London, S. E. I.

CHAIN HOISTS—
Catalog No. 38—devoted to the regular Ford line of Spur Geared, Screw and Differential Chain Hoists, as well as to several additional items such as Jib Cranes and Differential Hoists with ball bearing mountings, featuring particularly the new Ball Bearing Ford Spur Geared Hoist.
Ford Chain Block Division of American Chain and Cable Company, Philadelphia, Pa.

UNIT-SUSPENDED WALLS—
Booklet—devoted to Bigelow-Liptak Unit-suspended Walls, explaining why these walls are essential for: minimum maintenance, minimum conducting losses, and minimum air-infiltration, showing where the walls are used and why.
Bigelow-Liptak Corporation, Detroit, Mich.

PLATFORM AND SPECIAL TRUCKS—
Catalog No. 52—illustrating and describing Fairbanks Platform and Special Industrial Trucks.
The Fairbanks Company, New York, Boston, Pittsburgh, with factory at Rome, Ga.

SPEED CONTROL—
Catalog No. G-384—illustrating and describing the complete line of REEVES variable speed control equipment.
Reeves Pulley Company, Columbus, Ind.

SPECIAL TYPE DIESEL—
Bulletin—illustrating and describing a CP Diesel Engine, especially designed for heavy duty continuous service, in sizes of 300 to 800 horsepower, Type RHB-100.
Chicago Pneumatic Tool Company, New York, N. Y.

STEEL FLOORING—
Catalog—covering Kerlow Steel Flooring, Bridge Paving, and Steelej Armor, illustrated with technical data.
Kerlow Steel Flooring Company, Jersey City, N. J.

Fiftieth Anniversary of Printers' Ink—By way of marking the fiftieth anniversary of its founding, Printers' Ink, a journal for advertisers published in New York, has issued as a second section of its regular edition a 472-page volume, telling the story of its beginning and development. Data from which the story was built were taken from the files of Printers' Ink itself—ranging from 1888 to 1938 — but do not present a history of the paper, as the paper, using the language of a foreword, "gets its glory out of the fact that for fifty years it has faithfully chronicled, interpreted and promulgated—also to an extent developed—the unfolding of marketing in all its far-flung ramifications." Incidental to the main story in the publication will be found an account of Printers' Ink's founding by George Presbury Rowell, who died in 1908, and its subsequent development by John Irving Romer, who was editor until his death in 1933.

JOINT PIPE AND FITTINGS—
Catalogue—"U. S. Joint Pipe and Fittings," illustrated, presenting detailed specifications and tables for the company's type of "mechanical joint" pipe and fittings and showing a wide range of applications.
United States Pipe and Foundry Company, Burlington, N. J.

PRESSURE VESSELS AND FABRICATED PLATE WORK—
Bulletin—illustrating typical large fabricated products and pressure vessels built by—
Combustion Engineering Company, Inc., 200 Madison Avenue, New York, N. Y.

STEEL PRODUCTS—
Pamphlet—Carbon Steel Plates, Section 6, classifying plates by size and by qualities, and describing standard and special manufacturing practices, etc.;
Pamphlet—Steel Tubular Products, Section 18, presenting definitions of standard pipe, oil country tubular goods, pressure pipe, pressure tubing and mechanical tubing, together with manufacturing tolerances applying to each class. Each pamphlet is a section of the "Steel Products Manual."
American Iron and Steel Institute, 350 Fifth Avenue, New York, N. Y.

HARD MAPLE FLOORING—
Pamphlet — describing and illustrating a new type of hard maple flooring, the Iron-Bound Edge-Grain Continuous Strip, as installed in the mimeograph plant of the A. B. Dick Company, Chicago.
Robbins Flooring Company, Heavy Duty and Industrial Wood Flooring Engineers, Rhinelander, Wis.

LIFT TRUCKS—
Bulletin No. 111—illustrated, covering Lyon Hydraulic Lift Truck Pallet Type for two faced pallets.
Lyon Iron Works, Greene, N. Y.

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INDUSTRIAL NEWS

(*Continued from page* 48)

Joins Pomona Pump Company

Svend A. Canariis, formerly waterworks engineer for Westinghouse Electric and Manufacturing Company of East Pittsburgh, Pa., has been appointed waterworks engineer for the Pomona Pump Company of Pomona, Cal. In his new position, Mr. Canariis will make his headquarters in Pittsburgh, and will devote his activities for the present to special application engineering in the Eastern states and foreign countries. He was born and educated in Denmark and came to this country in 1922.

Rosing With West Virginia Rail Company

The West Virginia Rail Company, Huntington, W. Va., announces the appointment of George Rosing as General Sales Manager. For the past three years Mr. Rosing has served as Division Sales Manager of the International Derrick and Equipment Company of Columbus, Ohio, and prior to that he served the Mount Vernon Bridge Company, Mt. Vernon, Ohio; The American Bridge Company, and the Canadian Bridge Company. He was born in Copenhagen, Denmark, and received his engineering education at Polytechnic Institute, a branch of the University of Copenhagen, later taking a post graduate course at Bonn, Germany.

Saves $30,000 A YEAR
WITH A LAYNE DEEP WELL & PUMP SYSTEM

WITH a water cost ranging from $40,000 to $50,000 a year, and possessing six unsatisfactory wells, the world-wide famous Allis-Chalmers Manufacturing Company, of Milwaukee, turned to Layne for a dependable, low cost water supply. The contract called for a minimum of 700 gallons per minute. Beginning with a sixteen-inch casing, The Layne Northwest Co. of Milwaukee (Affiliated Company of Layne & Bowler, Inc.) drilled to 1700 feet. A Layne Pump, operated by an Allis-Chalmers 100 horsepower motor, was installed. With a dependable capacity of near 1,700,000 gallons daily, their water is now being obtained at only 15% of former cost. Annual savings easily exceed $30,000.

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LAYNE-LOUISIANA CO. LAKE CHARLES, LA.
LAYNE-NEW YORK CO. . NEW YORK CITY, AND PITTSBURGH . . . . . PA.
LAYNE-NORTHWEST CO. MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . COLUMBUS, OHIO.
LAYNE-TEXAS CO. . . . HOUSTON AND DALLAS . . . . . TEXAS.
LAYNE-WESTERN CO., KANSAS CITY, MO. CHICAGO, ILL., MINNEAPOLIS, MINN. AND OMAHA . . . . . NEBRASKA.
LAYNE-BOWLER NEW ENGLAND COMPANY, BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., LONDON . . . . . ONTARIO, CANADA

Such records of savings from Layne Wells and Pumps are frequent occurrences. More and more manufacturers and municipalities, worried with growing costs in all divisions, are seeking a lower cost water supply. Just how much you may be able to save on water cost can be answered by our engineers. There is no obligation for their cooperation. Write. For literature, address LAYNE & BOWLER, INC., DEPT. XI, Memphis, Tenn.

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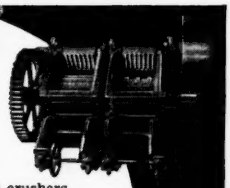
Atlanta, 1116 Murphy Ave., S. W.
Baltimore Dallas New Orleans Offices in Principal Cities

McLANAHAN EQUIPMENT
ROCK—SAND—GRAVEL



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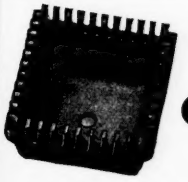

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The RICHMOND FOUNDRY & MANUFACTURING CO. Inc.
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"A Dependable Source of Supply"

Developments in Petroleum Refining

(*Continued from page* 17)

eliminated the temperamental behavior of heavy taxes. It is now possible to dewax petroleum at almost any stage in the refining process and obtain a high yield or low pour test and low cloud test oil. Generally speaking, solvent dewaxing plants are more costly than solvent treating plants, based upon barrels of oil charged, and, other factors being the same, it is somewhat more economical to dewax oils after the major refining steps have been made. However, it is now the refiner's choice and is not limited by the character of the wax as was formerly the case.

The economic importance of the developments mentioned above and others, cannot be calculated. Aside from the money saved in unit operation per barrel of oil processed, better products and many entirely new products have been made for which there are constantly expanding markets. New problems are continually arising and cannot be foreseen clearly in many cases. However, modern facilities have given petroleum refiners a far greater flexibility for meeting changing conditions than was ever possible before. Credit for this must go not only to men within the industry but without as well; to metallurgists and engineering companies with courage to see developments through in the face of heavy losses if the process failed to work.

No petroleum refining process can be considered as having "arrived." Even more revolutionary changes may be in store than any that have been made in the past. Considering that the cost of a single modern refining unit may be anywhere from one to five million dollars, radical changes might appear to be uneconomical. On the other hand, the supremacy of our airplanes or other nationally important developments may be involved. So far, petroleum refiners have never failed to give the utmost cooperation on problems of that kind, even though financial return seemed doubtful. Such activities, of course, are only permissible when industry is allowed to maintain adequate financial reserves.

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[1] Petroleum Facts and Figures—1937 Am. Pet. Inst.
[2] Nat. Pet. News, Vol. XXX, No. 22, 6/1/38.

Growing and Processing "Whole Cotton"

(*Continued from page* 27)

liquor from the whole cotton, the residue is in admirable condition for pulping. The standard procedures, alkali, sulfite, sulfate, and also the nitric acid one have been tried successfully in producing pulps of high alpha-cellulose content. The chlorine method successfully applied by Pomilio to the recovery of cellulose from straw at plants in Italy and Argentina and patented by Dreyfus for use with the woods appears promising and would have many commercial advantages could it be used with whole cotton. It has been shown that the stems alone can be pulped by chlorine. However, in attempting to pulp whole cotton, the treatments employed to insure complete pulping of the stems have probably been too drastic for the lint. A pulp with 70 per cent alpha-cellulose, but otherwise very satisfactory, compares favorably with Pomilio's products from straw; but it is unsatisfactory in comparison with pulps from whole cotton and containing better than 90 per cent alpha-cellulose easily attained by the methods cited.

In pulping whole cotton the consumption of reagents is no greater and probably less than in pulping the woods. High pressure and long-time cooks are not necessary, and the consumption of bleach is very much less. Since cotton is an annual, a continous supply of raw material can be produced in the immediate vicinity of the processing plant and transportation charges kept at a minimum not attainable with any other source of supply.

The national economy requires a large supply of vegetable oils. With the diminishing growing of cotton for lint alone which now seems inescapable, the replacement of the lessening oil supply by obtaining it from whole cotton is an argument for developing the latter as a staple crop. The steady development of the use of synthetic textiles, such as those employing "staple," would seemingly call for an expanding source of cellulose. Likewise this call comes from the expanding use of plastics, for the production of which cellulose has and will continue to have, probably, a dominant place. To meet these more or less imminent needs, growing and processing whole cotton would suffice.

The studies on whole cotton are not spectacular. Point by point the arising questions regarding the practicability of growing it, and processing it when grown, have been tested by field plot or laboratory. Interesting "side" questions have arisen, and some of these are now being investigated. But the main theme has been developed. Assuredly, confirmation of the conclusions here cited must precede commercial development. For this confirmation large-size equipment or a small pilot plant alone will suffice.

Railroads Spend $50,000,000 in Georgia

(*Continued from page* 29)

of railway taxes for the support of state, county, city and town governments. Every community and every county in which the railroads operate share in the benefits of railway taxes. Class 1 railway tax payments in Georgia totaled $2,942,000 last year. The amount of taxes paid by twenty-two smaller railroads and several switching and terminal companies operating in Georgia is not known, but their payments probably boosted total railway taxes in the state well above $3,000,000, not to mention personal and property taxes paid by railway employes, many of whom are home owners.

According to the latest available statistics on the distribution of railway taxes, based upon 1931, 66.6 per cent of all taxes paid by the railroads in Georgia goes to county governments, 15 per cent goes to cities and incorporated towns, and 18.4 per cent goes to the state government. Of the two-thirds which goes to support county governments, 62.7 per cent is used for highways and general expenses and 33.7 per cent goes to support the public schools. Public school expenditures per pupil enrolled in Georgia amount to approximately $34.41 a year. Therefore, assuming the same allocation of railway taxes in 1937 as in 1931, the county school taxes paid by Class 1 railroads in 1937 were sufficient to defray the public expense of educating approximatley 21,000 Georgia school children.

A third major contribution of the railroads to the economic life of Georgia is as employers of labor. A state by state canvass of active railway employes in July, 1937, developed the fact that the 13 Class 1 railroads operating in Georgia were providing employment for 24,563 persons in the state at that time. Adding 685 Pullman Company employes brings the figure up to 25,248. It is estimated that the twenty-eight smaller railway, switching and terminal companies operating in the state would increase this figure to approximately 28,000 employes.

The 25,248 Georgia employes of Class 1 railroads and the Pullman Company received a total annual compensation of $34,613,000 in 1937. Nearly every city and town in Georgia shared in this huge railway payroll. The importance of Georgia's railway payroll may be better appreciated when it is pointed out that the payroll of the average manufacturing establishment in Georgia, based on 1935 census of manufactures, is around $30,000. Therefore, the combined payrolls of the Class 1 railroads was equal to the combined payrolls of 1,124 of Georgia's 2,858 manufacturing establishments.

Is It a Crime to Have a Dollar?

(*Continued from page* 18)

to live and something to travel in. On the other hand, by his genius he is furnishing labor for thousands and hundreds of thousands who otherwise *could not organize themselves* into such a system with such rewards.

The rich man may have fifty rooms elegantly furnished, but he can occupy but one at a time, and he cannot consume